



**U.S. Department of Housing and Urban  
Development**

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## **Environmental Assessment Determinations and Compliance Findings for HUD-assisted Projects 24 CFR Part 58**

### **Project Information**

<b>Project Name:</b>	Orange Corporate Yard
<b>Responsible Entity:</b>	<b>OC Housing &amp; Community Development</b>
<b>Grant Recipient</b> (if different than Responsible Entity):	
<b>State/Local Identifier:</b>	CA/059
<b>Preparer:</b>	Jaclyn Canzone, OC Housing and Community Development
<b>Certifying Officer Name and Title:</b>	Julia Bidwell, Director OC Housing & Community Development
<b>Grant Recipient</b> (if different than Responsible Entity):	
<b>Consultant</b> (if applicable):	Jonathan Rigg, Dudek 1 SW Columbia Street, Suite 1500 Portland, Oregon 97258 503.956.1444
<b>Direct Comments to:</b>	Jaclyn Canzone, <a href="mailto:jaclyn.canzone@occr.ocgov.com">jaclyn.canzone@occr.ocgov.com</a>

**Project Location:**

The Orange Corporate Yard (referred to throughout this Environmental Assessment as the Multifamily Residential Project or proposed project) is located at 637 West Struck Avenue in the City of Orange, Orange County, California (refer to Attachment 1, Project Location). The 2.75-acre project site is located near the eastern terminus of West Struck Avenue. North Batavia Street lies west of the project site and West Katella Ave is located to the north. The subject site is situated on the east end of a larger 17.23-acre parcel that comprises the City of Orange Corporate Yard and Police Department building. The project site is located on Assessor's Parcel Number 375-291-14, an area zoned for Public Institution (P-I). This designation encompasses public, quasi-public, and institutional land uses, such as schools, City and County facilities, hospitals, major utility easements and properties, and service organizations. Housing related to an institutional use, including dormitories, employee housing, assisted living, nursing facilities, and convalescent homes, is also permitted. Supportive, transitional, and institution-related housing is allowed as an accessory use under this zoning designation. Currently, the project site consists of vacant land.

**Description of the Proposed Project [24 CFR 50.12 & 58.32; 40 CFR 1508.25]:**

The proposed affordable housing project by C&C Development and Orange Housing Development Corporation would be managed by Advanced Property Services Management, Inc. (APS). APS is a subsidiary owned by C&C Development and has been actively involved in the management of affordable apartment communities throughout Southern California for the past 30 years. The proposed project involves transforming a currently vacant lot into a 62-unit affordable housing community consisting of 18 two-bedroom units and 44 three-bedroom units. Two-bedroom units are 863 square feet and three-bedroom units are 1,123 square feet. Of the 62 family units, 20 would be reserved as Permanent Supportive Housing (PSH) units for formerly homeless families sourced with 12 units through the Family Care Center of Orange and eight units utilizing Orange County Housing Authority (OCHA) Project-Based Vouchers that will be using the County's Coordinated Entry System. In addition to the residential units, the proposed project includes a leasing office space for professional on-site management, community room, computer room, , barbeque pavilion for residents, tot lot, a fitness and teen area, turf areas and, a meandering central walkway in the active and passive green open space for families. The new parking lot would contain 127 parking spaces for residents (2.05:1 parking stall to housing unit ratio). Leadership in Energy and Environmental Design (LEED) Standards, which aim to create environmentally and socially responsible, healthy, and prosperous communities through building design, would be used to guide the proposed project's design and orientation.

The buildings are 38 feet tall. Total building area is 71,358 square feet. The dwelling unit per acre ratio rounds to 22. The site perimeter is defined by eight-foot-high masonry walls and tree rows in four-foot-wide planters. An automatic vehicular gate and a pedestrian gate is located at the Struck Avenue entrance and provides the sole entry and exit to the site. A vehicle turnaround is provided in front of the gate. A 451 square foot maintenance garage is located in

the northeast corner of the site. 133 trees are provided with the project, particularly adjacent to property lines for screening purposes. The project includes a tentative parcel map to subdivide the City's corporation yard property to accommodate the project. Two concessions are used for the project to accommodate greater building height and stories, and for extra perimeter wall height.

The Orange Corporate Yard would consist of two, three-story garden-style walkup buildings that feature a contemporary mission revival style of architecture popular in Southern California building design. Interconnected pedestrian walkways would facilitate easy access to the proposed project's numerous amenities, and a gated entrance with turnaround would provide easy access from West Struck Ave while providing a secure community for residents. The proposed project complies with the General Plan Land Use Designation of Public Facilities Max. 0.5 FAR (floor area ratio) and Institutions Max. 2.0 FAR (PFI) and a zoning designation of Public Institution.

Families Forward Affordable Housing Services, a social services organization founded in 1984, would provide a part-time on-site Supportive Service Coordinator for all 62 units of the Orange Corporate Yard development project. Social services ranging from education workshops, community counseling and career coaching, to Veteran Coordinated Services (for eligible residents) would be provided to residents for a minimum of 15 hours per week. Additional social services include Food Pantry seasonal programs and after-school programs for children. Residents of the PSH units would also receive these social services. Converting this vacant lot into an affordable housing community supports housing priorities outlined in the City of Orange's 2020-2024 Consolidated Plan by increasing housing for very low and moderate income families.

**Statement of Purpose and Need for the Proposal [40 CFR 1508.9(b)]:**

As demand increases for Orange County services, and the County's population increases, the need for additional housing and access to government services has also increased.

The proposed project's objectives are as follows:

- Create new affordable, safe, attractive, and service-enriched residences for low-income individuals and families.
- Create a community that fits into and improves the existing neighborhood in style, texture, scale, and relation to the street.
- Provide housing for low-income individuals and families.

**Existing Conditions and Trends [24 CFR 58.40(a)]:**

According to the Environmental Information Form completed by C&C Development and Orange Housing Development Corporation as well as the Phase 1 Environmental Site Assessment (ESA) completed by LOR Geotechnical Group Inc. in February 2020, the proposed project site is currently vacant and undeveloped though it is partially used for municipal storage (materials, vehicles, trailers, equipment, etc.). Historical photographs of the project area dating back to

1938 (provided in the ESA) reveal that the site has remained vacant since the 1930s when the land was used for agriculture. Construction has occurred adjacent to the project area but not on the actual site. Currently, the areas adjacent to the project site have commercial, industrial, and multifamily residential uses.

North: West Katella Avenue, Commercial (service uses, restaurants, retail)

South: West Collins Avenue, Industrial (auto repair, service uses)

East: Glassell Street, Active Railroad Right-of-Way followed by Multifamily Residential owned by the applicant (apartments)

West: North Batavia Street, Industrial (police department, industrial)



### **Funding Information**

<b>Grant Number</b>	<b>HUD Program</b>	<b>Funding Amount</b>
	HOME	\$479,520 <sup>1</sup>
	8 Project Based Vouchers	\$2,461,440 <sup>1</sup> (estimated 20-year amount)
	HOME	\$1,600,000 <sup>2</sup>
<sup>1</sup> County of Orange <sup>2</sup> City of Orange		

**Estimated Total HUD Funded Amount: \$4,540,960**

**Estimated Total Project Cost (HUD and non-HUD funds) [24 CFR 58.32(d)]: \$28,432,574**

### **Compliance with 24 CFR 50.4, 58.5, and 58.6 Laws and Authorities**

Record below the compliance or conformance determinations for each statute, executive order, or regulation. Provide credible, traceable, and supportive source documentation for each authority. Where applicable, complete the necessary reviews or consultations and obtain or note applicable permits of approvals. Clearly note citations, dates/names/titles of contacts, and page references. Attach additional documentation as appropriate.

<b>Compliance Factors:</b> Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
<b>STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 and 58.6</b>		
<b>Airport Hazards</b>  24 CFR Part 51 Subpart D	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	The project site is not located within close proximity to a military or municipal airport. The nearest airport is John Wayne Airport, which is 8.42 miles south of the project area (see Attachment 2; see Environmental Review Record [ERR] 1).
<b>Coastal Barrier Resources</b>  Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 USC 3501]	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	The Coastal Barrier Resources Act does not apply to this project since no coastal barrier resources protected under this policy occur in California (see Attachment 3). In addition, since the proposed residential project is located approximately 13.33 miles from the coast, it is unlikely to affect coastal resources.
<b>Flood Insurance</b>  Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994 [42 USC 4001-4128 and 42 USC 5154a]	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) indicates that the project site does not occur on a flood plain. An area with reduced flood risk due to a levee occurs west of the project area (see Attachment 4).  Firm Panel 06059 C0161J Effective December 2009 (see ERR 2).
<b>STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 &amp; 58.5</b>		
<b>Clean Air</b>  Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR Parts 6, 51, 93	Yes    No <input checked="" type="checkbox"/> <input type="checkbox"/>	The proposed project falls under the jurisdiction of the South Coast Air Quality Management District (SCAQMD) within the South Coast Air Basin. The SCAQMD, according to the U.S. Environmental Protection Agency is currently in a nonattainment zone for federal ozone (8-hour ozone) and particulate matter from greenhouse

		<p>gasses (PM<sub>2.5</sub>). Federal ozone in Orange County has been classified as extreme, while PM<sub>2.5</sub> has been classified as moderate. In order to meet HUD air quality guidelines, the proposed project must follow the State Implementation Plan (SIP), which describes how an area will meet national and ambient air quality standards. SIP guidelines require the proposed project to keep its criteria pollutant emissions below SCAQMD's significance thresholds.</p> <p>The project site's location close to public transportation is consistent with regional efforts to improve transit availability and would reduce the amount of emissions (PM<sub>2.5</sub>) associated with motor vehicle travel. By developing affordable housing consistent with the growth anticipated by the General Plan and existing zoning and land use designations, the proposed project is in compliance with Regional Air Quality Strategy, the SIP, and the Air Quality Management Plan for this locality.</p> <p>Air quality at the project site could be negatively impacted by fugitive dust (PM<sub>10</sub>) and other particulate air pollutants (PM<sub>2.5</sub>) released during construction-related activities, such as land clearing or grading. Exhaust emissions (oxides of nitrogen [NO<sub>x</sub>] and carbon monoxide [CO]) released by heavy construction vehicles could also temporarily impact air quality. Adverse impacts to air quality during construction would be managed by implementing mitigation measures for fugitive dust control in compliance with SCAQMD Rule 403. This guideline identifies measures to reduce fugitive dust that are required to be implemented at all construction sites within the South Coast Air Basin <b>(Mitigation Measure 1)</b>.</p> <p>The California Emissions Estimator Model (CalEEMod) was used to estimate annual criteria air pollutant emissions during the construction and operational phases for the proposed project. Pollutants including PM<sub>2.5</sub>, PM<sub>10</sub>, NO<sub>x</sub>, and CO levels all fell below de minimis</p>
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		thresholds during the construction and operational phases. Daily emissions from the proposed project would not exceed the SCAQMD's regional construction or operation emissions thresholds (see Attachment 5).
<b>Coastal Zone Management</b>  Coastal Zone Management Act, sections 307(c) & (d)	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	No adverse impacts to California's designated coastal zones would occur as a result of the proposed development. The project site is located 13.33 miles from the Pacific Ocean and does not exist within a Coastal Zone, as defined by the California Coastal Act (Public Resources Code, Division 20, Section 3000 et seq.)(see Attachments 6 and 7; see ERR 4).
<b>Contamination and Toxic Substances</b>  24 CFR Part 50.3(i) & 58.5(i)(2)	Yes    No <input checked="" type="checkbox"/> <input type="checkbox"/>	<p>A Phase 1 ESA conducted by LOR Geotechnical Group Inc. in February 2020 found no recognized environmental conditions (RECs), historical recognized environmental conditions (HRECs), or controlled recognized environmental conditions (CRECs) on the proposed project site. Over 200 plastic 5-gallon buckets containing insecticide (Zone Defense®, orthoboric acid) were stored at the project site and should be removed prior to construction. No hazardous materials or wastes were observed at the subject property during the on-site evaluation. De minimis hydrocarbon-stained soils were observed across the proposed project area.</p> <p>Vapor encroachment conditions, tested in the Phase 1 ESA using Tier 1 and 2 Vapor Encroachment Screening, were not found at the proposed project site. Review of environmental regulatory records for the properties surrounding the project location did not show history of hazardous substances or petroleum products that could migrate to or affect the proposed project.</p> <p>Given the project site's agricultural history, organochlorine pesticides (OCPs) and arsenic might be present in on-site soils. Historic and current storage of vehicles, trailers, and equipment on the project site has resulted in the deposit of shallow fill materials across the</p>

		<p>project site. Soil testing for these substances, in accordance with the Department of Toxic Substances Control (DTSC) 2008 Interim Guidance for Sampling Agricultural Properties (Third Revision), was conducted by LOR Geotechnical Group Inc. in a Phase II ESA in October 2020. A total of 7 soil borings were advanced for soil sample collection and soil vapor probe installation up to a maximum depth of 13 feet below ground surface. Soil samples were analyzed for petroleum hydrocarbon chain, volatile organic compounds (VOCs), heavy metals, boron, and/or organochlorine pesticides. Soil vapor samples were analyzed for total petroleum hydrocarbons as gasoline (TPH-G) and VOCs.</p> <p>Results of soil testing revealed no adverse environmental impacts to on-site soils as a result of any past site uses. Reported concentrations of petroleum hydrocarbons, heavy metals, OCPs, and boron were less than DTSC screening levels for residential soils. Soil vapor concentrations of TPH-G and VOCs, such as benzene and ethylbenzene, exceed DTSC screening levels for residential indoor air with an attenuation factor of 0.03 applied. While a Health Risk Assessment might determine that mitigation measures are not required, presently the following mitigation measures to reduce vapor concentrations should be applied: geotechnical removal and recompaction of the upper approximate 5 feet of on-site soils and the placement of a vapor barrier beneath all planned on-grade buildings (see Attachment 8 and <b>Mitigation Measure 2</b>).</p> <p>A regulatory records review conducted as part of the Phase 1 ESA did not show any history of underground storage tanks (USTs) or environmental activity use limits where the residential development is to be built. While surrounding properties were found to have USTs and prior reports of leaking underground storage tank (LUST) sites, these sites should have no adverse impact on the project site due</p>
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		to their distances away and/or closed LUST regulatory case status. The Orange Corporate Yard includes other City departments, including the City Public Works and Fire Department, among others. Containers with hazardous materials and wastes, such as materials related to asphalt and paint, were found on areas of the Orange Corporate Yard outside of the project site (see ERR 5).
<b>Endangered Species</b>  Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	<p>No federally listed special-status plant or wildlife species are expected to be present within the project site due to the urban and industrial setting surrounding the project site.</p> <p>Three species classified as Endangered or Threatened by the U.S. Fish and Wildlife Service (USFWS) were identified as possibly occurring on the proposed project site. These species include the coastal California gnatcatcher, least Bell's vireo, and Santa Ana sucker. According to USFWS's IPaC database, while the general habitat ranges of these three species overlap with the proposed project location, their critical habitat areas do not intersect with the project area (see Attachment 9).</p> <p>Therefore, the proposed project would not have any negative impacts on wildlife movement, migration, or nursery sites (see ERR 6).</p>
<b>Explosive and Flammable Hazards</b>  24 CFR Part 51 Subpart C	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	<p>Explosive or flammable hazardous materials would not be present at the proposed project site, which would be developed into affordable housing. The Phase 1 ESA conducted by LOR Geotechnical Group Inc. did not find explosive or flammable materials at the project site, which is currently an undeveloped area with storage of equipment and insecticide. Additional According to the ESA, observations of the properties adjoining the proposed project site did not contain any potential aboveground sources of contamination that could potentially impact the project site. Therefore, the proposed development would not expose residents or the surrounding community to dangerous explosive or flammable hazards.</p>
<b>Farmlands Protection</b>	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	<p>The proposed project site is located on land classified as "urban and built-up" by the</p>

<p>Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR Part 658</p>		<p>California Department of Conservation (see Attachment 10). The project area is designated as PFI and zoned as P-I, which lists supportive, transitional, and institution-related housing (dormitories, employee housing, assisted living, convalescent homes, etc.) as accessory uses. According to the Land Use Element of the Orange General Plan, the PFI designation, “provides for several types of public, quasi-public and institutional land uses, including schools, colleges and universities, City and County facilities, hospitals, and major utility easements and properties.” As suggested by zoning laws in the project area, the land surrounding the proposed project site is primarily industrial, commercial, and residential (see Attachment 11).</p> <p>Conversion of the vacant lot currently occupying the project site would not affect protected farmlands or include activities that would result in the transition of existing farmland to non-agricultural uses. Therefore, the proposed project complies with the Farmland Protection Policy Act.</p>
<p><b>Floodplain Management</b></p> <p>Executive Order 11988, particularly section 2(a); 24 CFR Part 55</p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>Floodplain management would not be adversely impacted by the proposed project as the project area does not occur on a floodplain or floodway. According to FEMA FIRM panel 06059 C0161J, the project would be in an Area of Minimal Flood Hazard and adjacent to an Area with Reduced Flood Risk due to Levee (see Attachment 4).</p>
<p><b>Historic Preservation</b></p> <p>National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR Part 800</p>	<p>Yes    No</p> <p><input checked="" type="checkbox"/>    <input type="checkbox"/></p>	<p>The California State Historic Preservation Office (SHPO) was consulted in September 2020 to identify the presence of any known historical or cultural resources on the proposed project site. Pursuant to 36 CFR 800.4(d), SHPO did not find evidence that any historic resources would be impacted by the proposed development. As described in <b>Mitigation Measure 4</b>, construction activities would cease and an archaeologist would be contacted in the event that historic or cultural resources were discovered on the project site.</p>

		<p>Pursuant to Public Resources Code section 21080.3.1 (c), tribes that are traditionally and culturally affiliated with the proposed project site, such as the Kizh Nation, were consulted. Included as <b>Mitigation Measure 5</b>, the Kizh Nation requested that a Native American monitor be present during ground-disturbing activities (see Attachment 12 and ERR 7).</p>
<p><b>Noise Abatement and Control</b></p> <p>Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B</p>	<p>Yes    No</p> <p><input checked="" type="checkbox"/>    <input type="checkbox"/></p>	<p><b>Construction Noise.</b> A temporary increase in noise levels would be expected during the construction phase of the proposed project. Noise would be generated by construction equipment and the delivery of materials among other activities. Increases in ambient noise levels would be restricted to daytime hours and remain within applicable thresholds.</p> <p><b>Operational Noise</b> The proposed project is not expected to have a negative impact on ambient noise levels during the operational phase. Sources of ambient noise produced by the proposed development during the operational phase would be related to residential land uses. These noise sources may stem from people and children, car doors slamming, garage doors, trash collection, and outdoor common areas, among others.</p> <p>Using the HUD noise model, it was preliminarily found that the project site (prior to development of the proposed project) would exceed the acceptable day-night average sound level (<math>L_{dn}/DNL</math>) of below 65 decibels for proposed HUD-assisted projects, due to the proposed project's close proximity to the active Metrolink Inland Empire-Orange County rail lines. A more detailed noise study was conducted by Urban Crossroads, Inc., in March 2020 to determine noise exposure and necessary noise mitigation measures for the proposed project. The Federal Transit Administration rail noise prediction model was used to calculate the worst-case future exterior rail noise levels at the project location. Based upon the results of the Urban Crossroads noise report, noise levels would be below 65 dBA</p>



		<p><math>L_{dn}/DNL</math> (the HUD exterior noise threshold) at the building façade closest to the railroad due to distance from the railroad and at outdoor living facilities (e.g. tot lots and patios) due to screening from the positioning of the proposed buildings as well as the proposed solid masonry boundary wall. In addition, ambient noise levels in the interior of the proposed residences would be reduced to below 45 dBA <math>L_{dn}/DNL</math> (the HUD interior noise threshold) with the implementation of the following mitigation measures (see Attachment 13 and <b>Mitigation Measure 3</b>):</p> <ul style="list-style-type: none"> <li>• Windows and glass doors that are well fitted, have weather stripping, and have a minimum sound transmission class rating of 27 will be used.</li> <li>• Exterior non-glass doors will be outfitted with weather stripping.</li> <li>• The space between the outdoor walls and any pipes, ducts, or conduits will be caulked or filled with mortar to form an airtight seal.</li> <li>• Roof sheathing made of wood shall be per the manufacturer's specification or caulked plywood of at least 0.5 inches thick. Ceilings will also be per the manufacturer's specification or well-sealed gypsum board of at least 0.5 inches thick.</li> <li>• Insulation with a minimum rating of R-19 will be used in attic space.</li> <li>• Interior rooms will still receive circulated air even when exterior doors and windows remain closed. A forced air circulation system or active ventilation system will be provided to satisfy the requirements of the Uniform Building Code.</li> </ul> <p>With the inclusion of these mitigation measures, the proposed project is not expected to exceed allowable noise thresholds required by HUD (see ERR 8).</p>
<b>Sole Source Aquifers</b>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	The project site is not located on or adjacent to any sole-source aquifers. There are no sole-

Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR Part 149		source aquifers designated in Orange County (see Attachment 14).
<b>Wetlands Protection</b>  Executive Order 11990, particularly sections 2 and 5	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	The National Wetlands Inventory map regulated by USFWS was used to determine the presence of wetlands on the proposed project site. No wetlands were found in the project area. The closest wetland is the Collins Channel, nearly 0.25 miles northwest of the project site (see Attachment 15 and ERR 9).
<b>Wild and Scenic Rivers</b>  Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	The proposed project site does not contain any rivers protected under the Wild and Scenic Rivers Act. Bautista Creek, located approximately 67 miles east of the proposed project area, is the closest Wild and Scenic waterway to the project area (see Attachment 16; see ERR 10).
<b>ENVIRONMENTAL JUSTICE</b>		
<b>Environmental Justice</b>  Executive Order 12898	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	The proposed project would have a beneficial impact to populations protected by environmental justice by providing affordable housing and social services, such as career coaching, skill building, and a Food Pantry, to residents and the homeless. Negative impacts to the project environment were not found outside of those discussed above, which would be avoided, reduced, or mitigated through incorporation of design features, compliance with applicable regulations and policies, and implementation of mitigation measures. Since the project does not expose residents or community members to adverse environmental impacts or negatively impact social welfare, it would not violate Executive Order 12898 (see ERR 11).

**Environmental Assessment Factors** [24 CFR 58.40; Ref. 40 CFR 1508.8 &1508.27] Recorded below is the qualitative and quantitative significance of the effects of the proposal on the character, features and resources of the project area. Each factor has been evaluated and documented, as appropriate and in proportion to its relevance to the proposed action. Verifiable source documentation has been provided and described in support of each determination, as appropriate. Credible, traceable and supportive source documentation for each authority has been provided. Where applicable, the necessary reviews or consultations have been completed and applicable permits of approvals have been obtained or noted. Citations, dates/names/titles

of contacts, and page references are clear. Additional documentation is attached, as appropriate.  
**All conditions, attenuation or mitigation measures have been clearly identified.**

**Impact Codes:** Use an impact code from the following list to make the determination of impact for each factor.

**(1)** Minor beneficial impact

**(2)** No impact anticipated

**(3)** Minor Adverse Impact – May require mitigation

**(4)** Significant or potentially significant impact requiring avoidance or modification which may require an Environmental Impact Statement

Environmental Assessment Factor	Impact Code	Impact Evaluation
<b>LAND DEVELOPMENT</b>		
Conformance with Plans / Compatible Land Use and Zoning / Scale and Urban Design	2	The project site encompasses 2.75 acres of the Orange Corporate Yard. In the City's General Plan Land Use Element, the proposed area is designated as Public Facilities Max 0.5 FAR and Institutions Max 2.0 FAR. The project site is zoned as a Public Institution (P-I). The City has interpreted these designations to allow for construction of affordable workforce housing in the PFI General Plan Land Use District.
Soil Suitability/ Slope/ Erosion/ Drainage/ Storm Water Runoff	3	<p><b>Soil Suitability.</b> The surface of the project site is primarily dirt covered in gravel or asphalt grindings, with some bare dirt exposed. Analysis of soil composition at the project site revealed that surface soils were comprised of course-grained soils with gravel and asphalt debris while underlying soils included lean clay and sand. Soils at 41 feet were composed of course-grained materials such as gravels and cobbles. Soil stability would not be adversely impacted by the proposed project as the project site is in an area with low potential for liquefaction, landslides, or seismically induced settlement. Successful building development on adjacent parcels indicate that the soils on the site are suitable for the proposed project.</p> <p><b>Slope and Drainage.</b> Slopes that would impact the proposed project were not found on the project site. The proposed project site is generally flat, though the surface slightly slopes west. The northeast corner of the project area has the highest elevation. Ground surface elevation at the site ranges from approximately 179 to 186 feet above mean sea level. The project does not include any substantial alterations to drainage conditions.</p> <p><b>Erosion and Storm Water Runoff.</b> There is minimal chance of erosion at the project site due to the flat topography of the area. In addition, the proposed project would comply with erosion control measures during the construction phase to minimize</p>

		<p>erosion and stormwater pollution. Best management practices (BMPs) adopted from the Stormwater Quality Management Plan would be incorporated during and after the construction phase of the project (<b>Mitigation Measure 6</b>). Other low-impact drainage BMPs include maintaining existing drainage pathways and impervious areas and retaining natural areas where possible. Runoff from the project site is not anticipated to exceed the capacity of stormwater drainage systems or contribute to stormwater pollution.</p>
<p>Hazards and Nuisances including Site Safety and Noise</p>	3	<p><b>Hazardous Materials.</b> The Phase I ESA conducted by LOR Geotechnical Group Inc. did not find evidence of any RECs, HRECs, or CRECs on the project site. No containers of hazardous materials were observed during the site reconnaissance, with the exception of insecticide (Zone Defense, orthoboric acid) stored in buckets on site. Additional soil testing for potentially hazardous agricultural chemicals was recommended given the project site's historical use as agricultural land and storage. A Phase II ESA also conducted by LOR Geotechnical Group Inc. concluded that there are no adverse environmental impacts to on-site soils as a result of past land uses. In addition, there were no obvious signs of impacts, including soil staining or chemical odor that were noted during soil boring advancement and sampling. Since vapor encroachment levels on site exceeded DTSC thresholds for residential soils, mitigation measures to minimize potential vapor encroachment shall be implemented (<b>see Mitigation Measure 2</b>).</p> <p><b>Site Safety.</b> The project would be constructed consistent with the current Orange County requirements for fencing, lighting, and other features related to site safety. No impacts related to hazards, nuisance, or site safety would occur.</p> <p><b>Noise.</b> A temporary increase in noise would occur during the construction phase of the project as a result of materials being transported to the site and heavy machinery use. Noise levels would adhere to standards set by Orange County for construction impacts on noise-sensitive land uses. Increased noise would be limited to daylight hours. Adverse impacts to the surrounding community as a result of increased noise are not foreseen.</p> <p>Sources of noise during the operational phase include project-generated traffic, recreational spaces associated with the project, car door slamming, garage doors closing, and similar sounds associated with people and children. Adverse impacts from operational phase noise are not expected due to the relatively small size of the development. Operational noise</p>

		<p>generated by the proposed project would similarly comply with HUD noise thresholds.</p> <p>Urban Crossroads Inc. completed a noise impact analysis to determine whether existing ambient noise generated by surrounding land uses would have negative effects on the proposed project. According to the noise impact analysis, with the implementation of mitigation measures to reduce the impact of outdoor noise sources on indoor noise levels, the proposed project would meet HUD's 45 dBA threshold for maximum interior noise levels. (see Attachment 13 and <b>Mitigation Measure 3</b>). In addition, HUD's 65 dBA noise threshold for exterior facilities would also be met at outdoor living facilities (e.g. tot lots).</p>
Energy Consumption	2	To obtain building permits, this project would be required to meet energy consumption standards as outlined in the California Building Code, Title 24, 2001 Energy Efficiency Standards. This project would be designed to be LEED certified.

Environmental Assessment Factor	Impact Code	Impact Evaluation
<b>SOCIOECONOMIC</b>		
Employment and Income Patterns	1	<p>The proposed project has the potential for temporary job creation during the construction phase. Income patterns in the community would benefit from the 62-unit development, which includes 20 PSH units reserved for formerly homeless families sources through the Family Care Center of Orange.</p> <p>The proposed affordable housing project includes a partnership with Families Forward, Mary's Kitchen, HomeAid OC, and other social service providers in the area to provide residents with employment, counseling, and family resources. Specifically, Families Forward would provide home ownership workshops, parenting education, a life skills workshop series, a course in credit counseling and financial literacy, stress management workshops, social services enrollment, a mobile medical and dental clinic, legal aid, domestic violence services, and child care. These services would be provided to residents on-site and funded through the property's operating budget. A Support Services Coordinator would be present for a minimum of 15 hours a week to assist residents with organization and implementation of Families Forward programs.</p>
Demographic Character Changes, Displacement	1	<p>Since the proposed project would be built in an area already occupied by industrial, and public institutional land uses, the development would not adversely affect community character. The project involves transforming an underutilized lot to improve the quality of housing and add to the affordable</p>

		housing stock within Northern and Central Orange County. Therefore, the project would not result in the displacement of existing businesses or residences in the area. Increasing affordable housing units supports the housing priorities detailed in the Orange County Consolidated Plan by building accommodations for families with very low to moderate income levels. Consistent with the city's design guidelines, the proposed project would feature contemporary mission revival architecture and elevations. The proposed project would have a positive impact on community character while remaining compliant with existing land use designations and design.
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Environmental Assessment Factor	Impact Code	Impact Evaluation
<b>COMMUNITY FACILITIES AND SERVICES</b>		
Educational and Cultural Facilities	2	<p>While the project would potentially increase enrollment at schools nearby, negative impacts on educational facilities is not foreseen due to the availability of schools in the area and relatively small size of the development (42 of 60 units at the proposed project would house families). Impact fees paid by the developer as part of the local government approval process would offset any potential impacts to community facilities and services.</p> <p>The project site is located near multiple educational facilities, including:</p> <ul style="list-style-type: none"> <li>• Orange High School, approximately 1.4 miles from the project site</li> <li>• Richland High School, approximately 0.9 miles from the project site</li> <li>• Chapman University, approximately 1.3 miles from the project area</li> <li>• Sycamore Elementary, approximately 1.4 miles from the project area</li> <li>• Yorba Middle School, approximately 1.3 miles from the project site</li> </ul>
Commercial Facilities	2	No adverse impacts to surrounding commercial facilities are anticipated. The project site is bordered by active railroad right-of-way, public institution and industrial uses.
Health Care and Social Services	2	<p>Increases in the local population could increase demand for health care and social services in the community.</p> <p>The project site is situated near numerous health care facilities, including:</p>

		<ul style="list-style-type: none"> <li>• Satellite Healthcare Orange, approximately 2.3 miles from the project site at 1518 West La Veta Avenue, Orange, CA 92868</li> <li>• CHOC Children's Hospital, about 2.5 miles from the project area at 505 South Main Street, Orange, CA 92868</li> <li>• St. Joseph Hospital, about 2.3 miles from the proposed project site at 1100 West Stewart Drive, Orange, CA 92868</li> <li>• UCI Medical Center, approximately 3.5 miles from the project area at 101 The City Drive South, Orange, CA 92868</li> <li>• Concentra Urgent Care, approximately 2.2 miles from the project site at 1045 North Tustin Street, Orange, CA 92867</li> </ul> <p>Adverse impacts on healthcare and social services are not anticipated due to the relatively small size of the project and availability of service providers near the proposed development.</p>
Solid Waste Disposal / Recycling	2	<p>CR&amp;R Incorporated, an environmental services organization that serves Orange, Los Angeles, San Bernardino, Imperial, and Riverside Counties, would collect solid waste generated by the proposed project. CR&amp;R manages an extensive network of processing facilities that properly dispose of solid waste, recyclables, green waste, food waste, construction and demolition waste, and electronic waste among other materials.</p> <p>Since the proposed project site is a vacant, undeveloped plot of land, there would not be any solid waste generated from demolition of an existing structure. The amount of solid waste generated by the proposed project during the operational phase would be a fraction of the throughput taken to Orange County landfills daily. As a result, adverse impacts from solid waste disposal associated with the proposed project are not anticipated.</p>
Waste Water / Sanitary Sewers	2	<p>The Orange County Sanitation District (OCSD) would treat wastewater generated by the proposed project. OCSD provides wastewater collection, treatment, and disposal services for nearly 2.6 million people in a 479-square-mile area covering central and northwest Orange County. The proposed project would not require the construction of additional sewage infrastructure. Negative impacts to wastewater systems and sanitary sewers servicing the proposed project site are not anticipated.</p>
Water Supply	2	<p>The Orange County Water District (OCWD), which services north and central Orange County, would supply water to the proposed project. OCWD replenishes water within the Orange County</p>

		<p>Groundwater Basin using water from the Santa Ana River, local rainfall, and water imported from the Colorado River and Northern California. The City of Orange obtains approximately 75% of its water from 12 active wells that draw from the Orange County Groundwater Basin. Existing infrastructure would be used to supply water to the proposed project site. Since the proposed development would not strain water resources, adverse impacts to the City's water supply are not foreseen.</p>
Public Safety - Police, Fire and Emergency Medical	2	<p>The project site is in close proximity to public safety providers, including:</p> <ul style="list-style-type: none"> <li>• Orange Police Department, only 0.1 miles from the project site at 1107 North Batavia Street, Orange, CA 92867</li> <li>• Anaheim Police Department 425 South Harbor Boulevard, approximately 6 miles from the project site at Anaheim, CA 92805</li> <li>• Orange City Fire Department Station #2, about 2.4 miles from the project site at 2900 East Collins Avenue, Orange, CA 92867</li> <li>• Orange City Fire Department Station #5, approximately 1.6 miles from the project site at 1345 West Maple Avenue, Orange, CA 92868</li> <li>• Orange City Fire Dept. Station #3, approximately 1.8 miles from the project site at 1910 North Shaffer Street, Orange, CA 92865</li> </ul> <p>Since existing police and fire departments sufficiently serve the proposed project area, the development is not expected to increase demand for public safety services in the community. In addition, impact fees paid by the developer as part of the local government approval process would offset any potential impacts to community facilities and services.</p>
Parks, Open Space and Recreation	2	<p>Recreational spaces in close proximity to the project site include:</p> <ul style="list-style-type: none"> <li>• Eisenhower Park, approximately 3.5 miles from the project site at 2864 North Tustin Street, Orange, CA 92865</li> <li>• Santiago Oaks Regional Park, approximately 6 miles east of the project site at 2145 Windes Drive, Orange, CA 92869</li> <li>• El Camino Real Park, about 1.4 miles southwest of the project site at 400 North Main Street, Orange, CA 92868</li> <li>• Handy Park, approximately 2.6 miles east of the proposed project at 2143 East Oakmont Avenue, Orange, CA 92867</li> <li>• Hart Park, approximately 2.7 miles southeast of the project site at 701 South Glassell St., Orange, CA 92866</li> </ul>



		Given the relatively small size of the proposed project, an adverse impact to parks, open spaces, and recreational areas is not anticipated. In addition, impact fees paid by the developer as part of the local government approval process would offset any potential impacts to community facilities and services.
Transportation and Accessibility	2	<p>The proposed project is within walking distance of several bus stops. The nearest bus stop is located at the corner of West Katella Avenue and North Batavia Street, only 0.4 miles from the project site.</p> <p>The proposed project includes the construction of a parking lot that would accommodate 127 parking spaces. Pre-existing urban development and readily available public transit near the proposed project site would reduce transportation and accessibility issues, such as limited parking and traffic. Considering the small size of the development and the parking lot ratio of 2.15 stalls for every 1 apartment unit, the proposed project is not expected to adversely impact transportation or accessibility in the area.</p>

Environmental Assessment Factor	Impact Code	Impact Evaluation
<b>NATURAL FEATURES</b>		
Unique Natural Features, Water Resources	3	<p>The project site does not encompass any unique natural features. Federally protected natural resources, such as rivers, wetlands, coastal zones, and endangered species, are not present on the project site or adjacent properties. Therefore, the proposed project would not result in the alteration of water resources that could potentially result in substantial erosion or siltation on or off site, or result in downstream flooding. Because the project involves building on currently vacant land, groundwater recharge at the project site could be reduced. Recharge would still occur in vegetated green spaces on the project site.</p> <p>Mitigation measures employing BMPs would be required during and post-construction to minimize potential adverse contributions to stormwater pollution (<b>Mitigation Measures 6 and 7</b>).</p>
Vegetation, Wildlife	2	While the proposed project is located within the ranges of three endangered or threatened species of birds and fish, none of these species are found on the project site as it is developed and in an urbanized area. According to the USFWS IPaC database, the project site is situated outside of critical habitat areas for the endangered or threatened species that have these areas defined (see ERR 5).

		The project area is largely absent of vegetation though plant life, such as bushes, trees, grasses, and weeds, can be found on the borders of the site.
Other Factors		

**Additional Studies Performed:**

- *Phase I Environmental Assessment*, Prepared by LOR Geotechnical Group Inc., February 2020
- *Phase II Environmental Assessment*, Prepared by LOR Geotechnical Group Inc., October 2020
- *Orange Corporate Yard Affordable Housing Noise Study*, Prepared by Urban Crossroads, March 2020

**Field Inspection** (Date and completed by):

- *Phase I Environmental Assessment*, Prepared by LOR Geotechnical Group, Inc., February 2020
- *Phase II Environmental Assessment*, Prepared by LOR Geotechnical Group, Inc., October 2020
- *Orange Corporate Yard Affordable Housing Noise Study*, Prepared by Urban Crossroads, March 2020

**List of Sources, Agencies and Persons Consulted** [40 CFR 1508.9(b)]:

CCC (California Coastal Commission). 2019. "Maps – Coastal Zone Boundary: Orange County." <https://coastal.ca.gov/maps/czb/>.

City of Orange. 2010. *Orange General Plan*. March 2010. <https://www.cityoforange.org/391/General-Plan>.

City of Orange. 2020-2024 Consolidated Plan. May 2020  
<https://www.cityoforange.org/1925/The-2020-2024-Consolidated-Plan>.

DOC (California Department of Conservation). 2016. California Important Farmland Finder. <https://maps.conservation.ca.gov/DLRP/CIFF/>.

EPA (U.S. Environmental Protection Agency). 2020. "Current Nonattainment Counties for all Criteria Pollutants." July 31, 2020. Accessed August 2020. <https://www3.epa.gov/airquality/greenbook/ancl.html>.

EPA. 2020. "Sole Source Aquifers for Drinking Water." Last updated January 14, 2020. Accessed August 2020. <https://www.epa.gov/dwssa>.

FEMA (Federal Emergency Management Agency). 2012. "FEMA Flood Map Service Center: Flood Insurance Rate Map for Irvine, California." <https://msc.fema.gov/portal/search#searchresultsanchor>.

SCAQMD (South Coast Air Quality Management District). 2005. "Rule 403: Fugitive Dust." As amended through June 3, 2005. <https://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf?sfvrsn=4>.

SCAQMD. 2019. "South Coast AQMD Air Quality Significance Thresholds." April 2019. Accessed August 2020. <http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf>.

USFWS (U.S. Fish & Wildlife Service). 2019. "Coastal Barrier Resources System Mapper." Updated July 31, 2019. Accessed October 2020. <https://www.fws.gov/cbra/maps/Mapper.html>.

USFWS. 2020. "Information for Planning and Consultation (IPaC)." Accessed August 2020. <https://ecos.fws.gov/ipac/location/JACZBM6PXJE25B3BXOS33AMDBE/resources#endangered-species>.

USFWS. 2020. "National Wetlands Inventory, Surface Waters and Wetlands Map." Accessed October 2020. <https://www.fws.gov/wetlands/data/mapper.html>.

U.S. National Park Service. 2019. "Interactive map of NPS Wild and Scenic Rivers." Accessed October 2020. <https://nps.maps.arcgis.com/apps/View/index.html?appid=ff42a57d0aae43c49a88daee0e353142>.

#### **List of Permits Obtained:**

#### **Public Outreach [24 CFR 50.23 & 58.43]:**

The City of Orange conducted public outreach in 2020 during the preparation of the 2020-2024 Consolidated Plan.

The Draft Environmental Assessment will be made available for public review and comment beginning on November 30, 2020 and concluding on December 15, 2020.

#### **Cumulative Impact Analysis [24 CFR 58.32]:**

The proposed project is not expected to contribute to a significant cumulative impact under the National Environmental Policy Act because it would consist of an urban development project consistent with the site's General Plan land use and zoning designations and would be located near existing transit services. State and local planning guidelines encourage the development of urban multifamily housing in areas served by transit and near commercial and cultural amenities because this type of development contributes less to cumulative effects on the environment in comparison to development of previously undisturbed sites in more remote locations with fewer transit connections, many of which contain native vegetation and wildlife species.

**Alternatives [24 CFR 58.40(e); 40 CFR 1508.9]**

Site identification has proven to be a major obstacle in providing affordable housing units. Multifamily residential sites available at reasonable cost are extremely limited, and sites that do not meet cost and land use criteria are generally eliminated as alternatives. This project site was chosen because the land is being provided by the City of Orange. No other build alternatives are analyzed or included in this environmental document.

**No Action Alternative [24 CFR 58.40(e)]:**

The No Action Alternative would not build any additional housing at the project site. There are no benefits to the physical or human environment by not taking the federal action associated with this project. Physical impacts to the environment would occur in urban areas whether units are subsidized with federal funds or built at market rates. If an affordable project were not constructed on this site, the social benefits of providing new affordable housing opportunities on an urban infill parcel would not occur.

The proposed project must acquire all required permits and approvals prior to construction; therefore, the proposed project would be consistent with all land use plans, policies, and regulations for the project site. Not building on this site could potentially result in more housing constructed outside of the urban area in agricultural and undeveloped areas, contributing to urban sprawl, regional traffic congestion, and regional air quality issues.

**Summary of Findings and Conclusions:**

C&C Development and Orange Housing Development Corporation is proposing to develop the Orange Corporate Yard affordable housing project. The project consists of 62 affordable housing units with 20 permanent PSH units. OCHA is providing PBVs; the Orange County Housing & Community Development and the City of Orange are providing HOME funds, respectfully. The proposed project would contribute to the increased density and availability of mix-used development in an area that would encourage multi-modal activity. The proximity of existing transit options to the project site would reduce long-term air emissions and energy use associated with motor vehicle travel.

Because the project is located within a developed urban area, the project would be adequately served by utilities and public services. The project would conform to all applicable federal, state, and regional regulations associated with land use compatibility, air emissions, water quality, geologic hazards, and related environmental resources addressed herein. Based on the analyses of environmental issues contained in this document, the proposed project is not expected to have significant environmental impacts.

**Mitigation Measures and Conditions [40 CFR 1505.2(c)]**

Summarize below all mitigation measures adopted by the Responsible Entity to reduce, avoid, or eliminate adverse environmental impacts and to avoid non-compliance or non-conformance with

the above-listed authorities and factors. These measures/conditions must be incorporated into project contracts, development agreements, and other relevant documents. The staff responsible for implementing and monitoring mitigation measures should be clearly identified in the mitigation plan.

#### *Air Quality – Fugitive Dust*

**Mitigation Measure 1:** The project shall implement the following from the list below, as applicable to the project:

- **Backfilling:** Stabilize backfill material when not actively handling, stabilize backfill material during handling, and stabilize soil at completion of activity.
- **Clearing and Grubbing:** Maintain stability of soil through pre-watering of site prior to clearing and grubbing, stabilize soil during clearing and grubbing activities, and stabilize soil immediately after clearing and grubbing activities.
- **Clearing Forms:** Use water spray, sweeping and water spray, or a vacuum system to clear forms.
- **Crushing:** Stabilize surface soils prior to operation of support equipment and stabilize material after crushing.
- **Cut and Fill:** Pre-water soils prior to cut and fill activities, and stabilize soil during and after cut and fill activities.
- **Demolition – Mechanical/Manual:** Stabilize wind erodible surfaces to reduce dust, stabilize surface soil where support equipment and vehicles will operate, stabilize loose soil and demolition debris, and comply with Air Quality Management District Rule 1403.
- **Disturbed Soil:** Stabilize disturbed soil throughout the construction site, and stabilize disturbed soil between structures.
- **Earth-Moving Activities:** Pre-apply water to depth of proposed cuts, re-apply water as necessary to maintain soil in a damp condition and to ensure that visible emissions do not exceed 100 feet in any direction, and stabilize soil once earth-moving activities are complete.
- **Importing/Exporting of Bulk Materials:** Stabilize material while loading to reduce fugitive dust emissions, maintain at least 6 inches of freeboard on haul vehicles, stabilize material while transporting and unloading to reduce fugitive dust emissions, and comply with Vehicle Code Section 23114.
- **Landscaping:** Stabilize soils, materials, slopes.
- **Road Shoulder Maintenance:** Apply water to unpaved shoulders prior to clearing, and apply chemical dust suppressants and/or washed gravel to maintain a stabilized surface after completing road shoulder maintenance.
- **Screening:** Pre-water material prior to screening, limit fugitive dust emissions to opacity and plume length standards, and stabilize material immediately after screening.
- **Staging Areas:** Stabilize staging areas during use, and stabilize staging area soils at project completion.
- **Stockpiles/Bulk Material Handling:** Stabilize stockpiled materials. Stockpiles within 100 yards of off-site occupied buildings must not be greater than 8 feet in height, or must

have a road bladed to the top to allow water truck access, or must have an operational water irrigation system that is capable of complete stockpile coverage.

- **Traffic Areas for Construction Activities:** Stabilize all off-road traffic and parking areas, stabilize all haul routes, and direct construction traffic over established haul routes.
- **Trenching:** Stabilize surface soils where trencher or excavator and support equipment will operate, and stabilize soils at the completion of trenching activities.
- **Truck Loading:** Pre-water material prior to loading and ensure that freeboard exceeds 6 inches (CVC 23114).
- **Turf Overseeding:** Apply sufficient water immediately prior to conducting turf vacuuming activities to meet opacity and plume length standards, and cover haul vehicles prior to exiting the site.
- **Unpaved Roads/Parking Lots:** Stabilize soils to meet the applicable performance standards and limit vehicular travel to established unpaved roads (haul routes) and parking lots.
- **Vacant Land:** In instances where vacant lots are 0.10 acres or larger and have a cumulative area of 500 square feet or more that are driven over and/or used by motor vehicles and/or off-road vehicles, prevent motor vehicle and off-road-vehicle trespassing, parking, and access by installing barriers, curbs, fences, gates, posts, signs, shrubs, trees, or other effective control measures.

### *Contamination and Toxic Substances*

**Mitigation Measure 2:** Results of soil sampling conducted during the Phase II Environmental Site Assessment revealed that soil vapor concentrations of total petroleum hydrocarbons as gasoline (TPH-G) and volatile organic compounds, including benzene and ethylbenzene, exceed Department of Toxic Substances Control screening levels for residential indoor air with an attenuation factor of 0.03 applied. To reduce potential adverse impacts related to soil vapor the following mitigation measures would be implemented:

- Geotechnical removal and re-compaction of the upper approximate 5 feet of on-site soils (i.e., engineered fill), which are relatively fine-grained and will provide a somewhat effective barrier at reducing soil vapor intrusion into the planned on-site buildings
- Placement of a vapor barrier, such as a membrane with sealing material like Liquid Boot®, beneath all planned on-grade buildings

### *Noise Abatement and Control*

**Mitigation Measure 3:** To reduce adverse impacts of existing ambient noise to be below HUD's 45 dBA  $L_{dn}$ /DNL threshold for interior spaces in the proposed development, the following mitigation measures would be implemented:

- **Windows and Glass Doors:** All windows and glass doors shall be well fitted, well weather-stripped assemblies, and shall have a minimum sound transmission class (STC) rating of 27.
- **Exterior Doors (Non-Glass):** All exterior doors shall be well weather-stripped and have minimum STC ratings of 27. Well-sealed perimeter gaps around the doors are essential to achieve the optimal STC rating.
- **Walls:** At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal.
- **Roof:** Roof sheathing of wood construction shall be per manufacturer's specification or caulked plywood of at least 0.5 inches thick. Ceilings shall be per manufacturer's specification or well-sealed gypsum board of at least 0.5 inches thick. Insulation with at least a rating of R-19 shall be used in the attic space.
- **Ventilation:** Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced-air circulation system (e.g., air conditioning) or active ventilation system (e.g., fresh air supply) shall be provided that satisfies the requirements of the Uniform Building Code.

#### *Historic Preservation (Cultural Resources)*

**Mitigation Measure 4:** In the event that previously unidentified cultural resources are encountered during ground-disturbing activities associated with project construction, work in the immediate area must halt, and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology shall be contacted immediately to evaluate the find. If the discovery proves to be significant under the National Environmental Policy Act, additional work such as data recovery excavation may be warranted to mitigate potential adverse effects.

**Mitigation Measure 5:** The developer shall be required to retain the services of a qualified Native American monitor(s) during construction-related ground-disturbing activities. The tribal representative from the Gabrieleño Band



of Mission Indians – Kizh Nation defines ground disturbance to include, but not limited to, pavement removal, potholing, grubbing, weed abatement, boring, grading, excavation, or trenching within the project area. The monitor must be approved by the tribal representative and shall be present on site during the construction phases that involve ground-disturbance activities. The on-site monitoring shall end when the project site grading and excavation activities are completed, or when the monitor has indicated that the site has a low potential for archaeological resources. If archaeological or cultural resources are encountered, they shall be documented by the Native American monitor and collected for preservation.

#### *Unique Natural Features, Water Resources*

**Mitigation Measure 6:** The proposed project shall include best management practices (BMPs) designed according to the guidance of the California Stormwater Quality Association Stormwater Best Management Practice Handbooks for Construction, for New Development/Redevelopment, and for Industrial and Commercial (or other similar source as approved by Orange County). Construction (temporary) BMPs for the proposed project shall include hydroseeding, straw mulch, velocity dissipation devices, silt fencing, fiber rolls, storm drain inlet protection, wind erosion control, and stabilized construction entrances.

**Mitigation Measure 7:** Prior to construction commencing, the applicant shall provide evidence to Orange County of a Waste Discharge Identification number generated from the State Regional Water Quality Control Board's Stormwater Multiple Application & Reports Tracking System. This serves as the Regional Water Quality Control Board's approval or permit under the National Pollutant Discharge Elimination System construction stormwater quality permit.

**Determination:**

☒ **Finding of No Significant Impact** [24 CFR 58.40(g)(1); 40 CFR 1508.27]

The project will not result in a significant impact on the quality of the human environment.

☐ **Finding of Significant Impact** [24 CFR 58.40(g)(2); 40 CFR 1508.27]

The project may significantly affect the quality of the human environment.

Preparer Signature: Jaclyn Canzone Date: 11/30/2020

Name/Title/Organization: Jaclyn Canzone, Staff Specialist, OC Housing & Community Development

Certifying Officer Signature: Julia Bidwell Date: 11/30/2020

Name/Title: Julia Bidwell, Director OC Housing & Community Development

This original, signed document and related supporting material must be retained on file by the Responsible Entity in an Environmental Review Record (ERR) for the activity/project (ref: 24 CFR Part 58.38) and in accordance with recordkeeping requirements for the HUD program(s).

## **ENVIRONMENTAL REVIEW RECORDS (ERRs)**

## **ERR #1. Airport Hazards**



**U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT**  
WASHINGTON, DC 20410-1000

This Worksheet was designed to be used by those “Partners” (including Public Housing Authorities, consultants, contractors, and nonprofits) who assist Responsible Entities and HUD in preparing environmental reviews, but legally cannot take full responsibilities for these reviews themselves. Responsible Entities and HUD should use the RE/HUD version of the Worksheet.

## **Airport Hazards (CEST and EA) – PARTNER**

<https://www.hudexchange.info/environmental-review/airport-hazards>

- 1. To ensure compatible land use development, you must determine your site’s proximity to civil and military airports. Is your project within 15,000 feet of a military airport or 2,500 feet of a civilian airport?**

☒ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing that the site is not within the applicable distances to a military or civilian airport.*

☐ Yes → *Continue to Question 2.*

- 2. Is your project located within a Runway Potential Zone/Clear Zone (RPZ/CZ) or Accident Potential Zone (APZ)?**

☐ Yes, project is in an APZ → *Continue to Question 3.*

☐ Yes, project is an RPZ/CZ → *Project cannot proceed at this location.*

☐ No, project is not within an APZ or RPZ/CZ

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing that the site is not within either zone.*

- 3. Is the project in conformance with DOD guidelines for APZ?**

☐ Yes, project is consistent with DOD guidelines without further action.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documentation supporting this determination.*

☐ No, the project cannot be brought into conformance with DOD guidelines and has not been approved. → *Project cannot proceed at this location.*

**If mitigation measures have been or will be taken, explain in detail the proposed measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.**

[Click here to enter text.](#)

*→ Work with the RE/HUD to develop mitigation measures. Continue to the Worksheet Summary below. Provide any documentation supporting this determination.*

### **Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

The project area is located over 8 miles from the nearest civilian airport, John Wayne Airport (see Attachment 2).

**Include all documentation supporting your findings in your submission to HUD.**

[Click here to enter text.](#)

## **ERR #2. Floodplain Management**



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

OMB No. 2506-0177  
(exp. 9/30/2021)

This Worksheet was designed to be used by those “Partners” (including Public Housing Authorities, consultants, contractors, and nonprofits) who assist Responsible Entities and HUD in preparing environmental reviews, but legally cannot take full responsibilities for these reviews themselves. Responsible Entities and HUD should use the RE/HUD version of the Worksheet.

## Floodplain Management (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/floodplain-management>

1. Does **24 CFR 55.12(c)** exempt this project from compliance with HUD’s floodplain management regulations in Part 55?

☐ Yes

**Provide the applicable citation at 24 CFR 55.12(c) here. If project is exempt under 55.12(c)(6) or (8), provide supporting documentation.**

*Click here to enter text.*

*→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Continue to the Worksheet Summary.*

☒ No → *Continue to Question 2.*

2. **Provide a FEMA/FIRM map showing the site.**

The Federal Emergency Management Agency (FEMA) designates floodplains. The [FEMA Map Service Center](#) provides this information in the form of FEMA Flood Insurance Rate Maps (FIRMs).

**Does your project occur in a floodplain?**

☒ No → *Continue to the Worksheet Summary below.*

☐ Yes

**Select the applicable floodplain using the FEMA map or the best available information:**

☐ Floodway → *Continue to Question 3, Floodways*

☐ Coastal High Hazard Area (V Zone) → *Continue to Question 4, Coastal High Hazard Areas*

☐ 500-year floodplain (B Zone or shaded X Zone) → *Continue to Question 5, 500-year Floodplains*

☐ 100-year floodplain (A Zone) → *The 8-Step Process is required. Continue to Question 6, 8-Step Process*

3. **Floodways**

**Is this a functionally dependent use?**

☐ Yes



The 8-Step Process is required. Work with HUD or the RE to assist with the 8-Step Process.  
→ *Continue to Worksheet Summary.*

- ☐ No → *Federal assistance may not be used at this location unless an exception in 55.12(c) applies. You must either choose an alternate site or cancel the project.*

**4. Coastal High Hazard Area**

**Is this a critical action such as a hospital, nursing home, fire station, or police station?**

- ☐ Yes → *Critical actions are prohibited in coastal high hazard areas unless an exception in 55.12(c) applies. You must either choose an alternate site or cancel the project.*

- ☐ No

**Does this action include new construction that is not a functionally dependent use, existing construction (including improvements), or reconstruction following destruction caused by a disaster?**

- ☐ Yes, there is new construction of something that is not a functionally dependent use.  
New construction must be designed to FEMA standards for V Zones at 44 CFR 60.3(e) (24 CFR 55.1(c)(3)(i)).

→ *Continue to Question 6, 8-Step Process*

- ☐ No, this action concerns only existing construction.

Existing construction must have met FEMA elevation and construction standards for a coastal high hazard area or other standards applicable at the time of construction.

→ *Continue to Question 6, 8-Step Process*

**5. 500-year Floodplain**

**Is this a critical action?**

- ☐ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

- ☐ Yes → *Continue to Question 6, 8-Step Process*

**6. 8-Step Process.**

**Is this 8-Step Process required? Select one of the following options:**

- ☐ 8-Step Process applies.

This project will require mitigation and may require elevating structure or structures. See the link to the HUD Exchange above for information on HUD's elevation requirements.

→ *Work with the RE/HUD to assist with the 8-Step Process. Continue to Worksheet Summary.*

- ☐ 5-Step Process is applicable per 55.12(a)(1-3).

**Provide the applicable citation at 24 CFR 55.12(a) here.**

[Click here to enter text.](#)

→ *Work with the RE/HUD to assist with the 5-Step Process. Continue to Worksheet Summary.*

- ☐ 8-Step Process is inapplicable per 55.12(b)(1-4).

**Provide the applicable citation at 24 CFR 55.12(b) here.**

[Click here to enter text.](#)

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

**Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

FEMA Firm Map 06059C0161J, effective date 12/3/2009 (See Attachment 4): Project is not in a floodplain.

**Include all documentation supporting your findings in your submission to HUD.**

[Click here to enter text.](#)

### **ERR #3. Air Quality**



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

This Worksheet was designed to be used by those “Partners” (including Public Housing Authorities, consultants, contractors, and nonprofits) who assist Responsible Entities and HUD in preparing environmental reviews, but legally cannot take full responsibilities for these reviews themselves. Responsible Entities and HUD should use the RE/HUD version of the Worksheet.

## Air Quality (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/air-quality>

1. Does your project include new construction or conversion of land use facilitating the development of public, commercial, or industrial facilities OR five or more dwelling units?

☒ Yes → Continue to Question 2.

☐ No → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Provide any documents used to make your determination.

2. Is your project’s air quality management district or county in non-attainment or maintenance status for any criteria pollutants?

Follow the link below to determine compliance status of project county or air quality management district:

<https://www.epa.gov/green-book>

☐ No, project’s county or air quality management district is in attainment status for all criteria pollutants

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.

☒ Yes, project’s management district or county is in non-attainment or maintenance status for one or more criteria pollutants. → Continue to Question 3.

3. Determine the estimated emissions levels of your project for each of those criteria pollutants that are in non-attainment or maintenance status on your project area. Will your project exceed any of the *de minimis* or *threshold* emissions levels of non-attainment and maintenance level pollutants or exceed the screening levels established by the state or air quality management district?

☒ No, the project will not exceed *de minimis* or threshold emissions levels or screening levels

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Explain how you determined that the project would not exceed *de minimis* or threshold emissions.

☐ Yes, the project exceeds *de minimis* emissions levels or screening levels.

→ *Continue to Question 4. Explain how you determined that the project would not exceed de minimis or threshold emissions in the Worksheet Summary.*

- 4. For the project to be brought into compliance with this section, all adverse impacts must be mitigated. Explain in detail the exact measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.**

[Click here to enter text.](#)

#### **Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

Air quality modeling for construction emissions was calculated using the CalEEMod model. Construction emissions are estimated to be below de minimis thresholds for NAAQS. See Attachment 5.

**Include all documentation supporting your findings in your submission to HUD.**

[Click here to enter text.](#)

#### **ERR #4. Coastal Zone Management Act**



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

This Worksheet was designed to be used by those “Partners” (including Public Housing Authorities, consultants, contractors, and nonprofits) who assist Responsible Entities and HUD in preparing environmental reviews, but legally cannot take full responsibilities for these reviews themselves. Responsible Entities and HUD should use the RE/HUD version of the Worksheet.

## Coastal Zone Management Act (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/coastal-zone-managementh>

Projects located in the following states must complete this form.

Alabama	Florida	Louisiana	Mississippi	Ohio	Texas
Alaska	Georgia	Maine	New Hampshire	Oregon	Virgin Islands
American Samoa	Guam	Maryland	New Jersey	Pennsylvania	Virginia
California	Hawaii	Massachusetts	New York	Puerto Rico	Washington
Connecticut	Illinois	Michigan	North Carolina	Rhode Island	Wisconsin
Delaware	Indiana	Minnesota	Northern Mariana Islands	South Carolina	

**1. Is the project located in, or does it affect, a Coastal Zone as defined in your state Coastal Management Plan?**

- ☐ Yes → Continue to Question 2.
- ☒ No → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing that the site is not within a Coastal Zone.

**2. Does this project include activities that are subject to state review?**

- ☐ Yes → Continue to Question 3.
- ☐ No → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination.

**3. Has this project been determined to be consistent with the State Coastal Management Program?**

- ☐ Yes, with mitigation. → The RE/HUD must work with the State Coastal Management Program to develop mitigation measures to mitigate the impact or effect of the project.
- ☐ Yes, without mitigation. → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination.
- ☐ No → Project cannot proceed at this location.

**Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

Proposed project is not in a Coastal Zone.

See Attachment 6.

**Include all documentation supporting your findings in your submission to HUD.**

[Click here to enter text.](#)



## **ERR #5. Contamination and Toxic Substances (Multifamily and Non-Residential Properties)**

## Contamination and Toxic Substances (Multifamily and Non-Residential Properties) – PARTNER

This Worksheet was designed to be used by those “Partners” (including Public Housing Authorities, consultants, contractors, and nonprofits) who assist Responsible Entities and HUD in preparing environmental reviews, but legally cannot take full responsibilities for these reviews themselves. Responsible Entities and HUD should use the RE/HUD version of the Worksheet.

General requirements	Legislation	Regulations
It is HUD policy that all properties that are being proposed for use in HUD programs be free of hazardous materials, contamination, toxic chemicals and gases, and radioactive substances, where a hazard could affect the health and safety of the occupants or conflict with the intended utilization of the property.		24 CFR 58.5(i)(2) 24 CFR 50.3(i)
Reference		
<a href="https://www.hudexchange.info/programs/environmental-review/site-contamination">https://www.hudexchange.info/programs/environmental-review/site-contamination</a>		

**1. How was site contamination evaluated? <sup>1</sup> Select all that apply.**

- ☒ ASTM Phase I ESA
- ☒ ASTM Phase II ESA
- ☐ Remediation or clean-up plan
- ☒ ASTM Vapor Encroachment Screening
- ☐ None of the above

→ Provide documentation and reports and include an explanation of how site contamination was evaluated in the Worksheet Summary.

Continue to Question 2.

**2. Were any on-site or nearby toxic, hazardous, or radioactive substances found that could affect the health and safety of project occupants or conflict with the intended use of the property? (Were any recognized environmental conditions or RECs identified in a Phase I ESA and confirmed in a Phase II ESA?)**

- ☐ No

**Explain:**

---

<sup>1</sup> HUD regulations at 24 CFR § 58.5(i)(2)(ii) require that the environmental review for multifamily housing with five or more dwelling units or non-residential property include the evaluation of previous uses of the site or other evidence of contamination on or near the site. For acquisition and new construction of multifamily and nonresidential properties HUD strongly advises the review include an ASTM Phase I Environmental Site Assessment (ESA) to meet real estate transaction standards of due diligence and to help ensure compliance with HUD’s toxic policy at 24 CFR §58.5(i) and 24 CFR §50.3(i). Also note that some HUD programs require an ASTM Phase I ESA.

Click here to enter text.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

☒ Yes.

→ *Describe the findings, including any recognized environmental conditions (RECs), in Worksheet Summary below. Continue to Question 3.*

### 3. Mitigation

Work with the RE/HUD to identify the mitigation needed according to the requirements of the appropriate federal, state, tribal, or local oversight agency. If the adverse environmental effects cannot be mitigated, then HUD assistance may not be used for the project at this site.

#### Can adverse environmental impacts be mitigated?

☐ Adverse environmental impacts cannot feasibly be mitigated

→ Project cannot proceed at this location.

☒ Yes, adverse environmental impacts can be eliminated through mitigation.

→ *Provide all mitigation requirements<sup>2</sup> and documents. Continue to Question 4.*

- Geotechnical removal and recompaction of the upper approximate 5 feet of on-site soils (i.e., engineered fill), which are relatively fine-grained and will provide a somewhat effective barrier at reducing soil vapor intrusion into the planned on-site buildings
- Placement of a vapor barrier, such as a membrane with sealing material like Liquid Boot<sup>®</sup>, beneath all planned on-grade buildings

### 4. Describe how compliance was achieved. Include any of the following that apply: State Voluntary Clean-up Program, a No Further Action letter, use of engineering controls<sup>3</sup>, or use of institutional controls<sup>4</sup>.

---

<sup>2</sup> Mitigation requirements include all clean-up actions required by applicable federal, state, tribal, or local law. Additionally, provide, as applicable, the long-term operations and maintenance plan, Remedial Action Work Plan, and other equivalent documents.

<sup>3</sup> Engineering controls are any physical mechanism used to contain or stabilize contamination or ensure the effectiveness of a remedial action. Engineering controls may include, without limitation, caps, covers, dikes, trenches, leachate collection systems, signs, fences, physical access controls, ground water monitoring systems and ground water containment systems including, without limitation, slurry walls and ground water pumping systems.

<sup>4</sup> Institutional controls are mechanisms used to limit human activities at or near a contaminated site, or to ensure the effectiveness of the remedial action over time, when contaminants remain at a site at levels above the applicable remediation standard which would allow for unrestricted use of the property. Institutional controls may include structure, land, and natural resource use restrictions, well restriction areas, classification exception areas, deed notices, and declarations of environmental restrictions.

Given the project site's agricultural history and the storage of vehicles, trailers, and equipment on-site, a Phase II ESA was completed by LOR Geotechnical Group, Inc. in October 2020 to determine the presence of soil contamination and vapor intrusion. Results of soil testing revealed no adverse environmental impacts to on-site soils as a result of any past site uses. Reported concentrations of petroleum hydrocarbons, heavy metals, OCPs, and boron were less than DTSC screening levels for residential soils. However, soil vapor concentrations for TPH-G and VOCs, including benzene and ethylbenzene, exceed DTSC levels for residential indoor air with an attenuation factor of 0.03 applied. While a Health Risk Assessment might determine that mitigation measures are not required, presently the following mitigation measures to reduce vapor concentration should be applied: geotechnical removal and recompaction of the upper approximately 5 feet of on-site soils and the placement of a vapor barrier beneath all planned on-grade buildings.

**If a remediation plan or clean-up program was necessary, which standard does it follow?**

☐ Complete removal

→ *Continue to the Worksheet Summary.*

☐ Risk-based corrective action (RBCA)

→ *Continue to the Worksheet Summary.*

### **Worksheet Summary**

#### **Compliance Determination**

Provide a clear description of your determination and a synopsis of the information that it was based on, such as:

Potential soil vapor concentrations at the project site will be mitigated by applying geotechnical removal and recompaction of the upper approximately 5 feet of on-site soils and the placement of a vapor barrier beneath all planned on-grade buildings, as described in the Phase II ESA- see Attachment 8.

**Are formal compliance steps or mitigation required?**

☒ Yes

☐ No

## **ERR #6. Endangered Species Act**



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

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## Endangered Species Act (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/endangered-species>

### 1. Does the project involve any activities that have the potential to affect species or habitats?

☐ No, the project will have No Effect due to the nature of the activities involved in the project.

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.

☐ No, the project will have No Effect based on a letter of understanding, memorandum of agreement, programmatic agreement, or checklist provided by local HUD office.

**Explain your determination:**

[Click here to enter text.](#)

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.

☒ Yes, the activities involved in the project have the potential to affect species and/or habitats.

→ Continue to Question 2.

### 2. Are federally listed species or designated critical habitats present in the action area?

Obtain a list of protected species from the Services. This information is available on the [FWS Website](#).

☐ No, the project will have No Effect due to the absence of federally listed species and designated critical habitat.

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination. Documentation may include letters from the Services, species lists from the Services’ websites, surveys or other documents and analysis showing that there are no species in the action area.

☒ Yes, there are federally listed species or designated critical habitats present in the action area.

→ Continue to Question 3.

**3. Recommend one of the following effects that the project will have on federally listed species or designated critical habitat:**

☒ No Effect: Based on the specifics of both the project and any federally listed species in the action area, you have determined that the project will have absolutely no effect on listed species or critical habitat.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination. Documentation should include a species list and explanation of your conclusion, and may require maps, photographs, and surveys as appropriate.*

☐ May Affect, Not Likely to Adversely Affect: Any effects that the project may have on federally listed species or critical habitats would be beneficial, discountable, or insignificant.

→ Partner entities should not contact the Services directly. *If the RE/HUD agrees with this recommendation, they will have to complete Informal Consultation. Provide the RE/HUD with a biological evaluation or equivalent document. They may request additional information, including surveys and professional analysis, to complete their consultation.*

☐ Likely to Adversely Affect: The project may have negative effects on one or more listed species or critical habitat.

→ Partner entities should not contact the Services directly. *If the RE/HUD agrees with this recommendation, they will have to complete Formal Consultation. Provide the RE/HUD with a biological evaluation or equivalent document. They may request additional information, including surveys and professional analysis, to complete their consultation.*

**Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

The range of three threatened or endangered species overlap with the project site. However, according to the U.S. Fish and Wildlife Service's IPaC database, the project site is located outside of critical habitat areas for the endangered or threatened species that have these areas defined. Furthermore, the project site is currently developed and within a fully urbanized area; therefore, no species or critical habitat occur at the site and there would be no impacts to listed species or critical habitat (see Attachment10).

**Include all documentation supporting your findings in your submission to HUD.**

According to US Fish and Wildlife Service's IPaC webpage, 3 federally-listed species occur within the proposed project site. Since the project site occurs in a highly developed urban area and does not overlap with critical habitat for these species, the proposed development is not expected to have adverse impacts on any federally-listed species.

See Attachment 9.

## **ERR #7. Historic Preservation**





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

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## Historic Preservation (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/historic-preservation>

### Threshold

#### Is Section 106 review required for your project?

- ☐ No, because a Programmatic Agreement states that all activities included in this project are exempt. (See the [PA Database](#) to find applicable PAs.)

**Either provide the PA itself or a link to it here. Mark the applicable exemptions or include the text here:**

[Click here to enter text.](#)

→ *Continue to the Worksheet Summary.*

- ☐ No, because the project consists solely of activities included in a No Potential to Cause Effects memo or other determination [36 CFR 800.3(a)(1)].

**Either provide the memo itself or a link to it here. Explain and justify the other determination here:**

[Click here to enter text.](#)

→ *Continue to the Worksheet Summary.*

- ☒ Yes, because the project includes activities with potential to cause effects (direct or indirect). → *Continue to Step 1.*

#### **The Section 106 Process**

After determining the need to do a Section 106 review, HUD or the RE will initiate consultation with regulatory and other interested parties, identify and evaluate historic properties, assess effects of the project on properties listed on or eligible for the National Register of Historic Places, and resolve any adverse effects through project design modifications or mitigation.

Step 1: Initiate consultation

Step 2: Identify and evaluate historic properties

Step 3: Assess effects of the project on historic properties

Step 4: Resolve any adverse effects

Only RE or HUD staff may initiate the Section 106 consultation process. Partner entities may gather information, including from SHPO records, identify and evaluate historic properties, and make initial assessments of effects of the project on properties listed in or eligible for the National Register of Historic Place. Partners should then provide their RE or HUD with all of their analysis and documentation so that they may initiate consultation.

## Step 1 - Initiate Consultation

The following parties are entitled to participate in Section 106 reviews: Advisory Council on Historic Preservation; State Historic Preservation Officers (SHPOs); federally recognized Indian tribes/Tribal Historic Preservation Officers (THPOs); Native Hawaiian Organizations (NHOs); local governments; and project grantees. The general public and individuals and organizations with a demonstrated interest in a project may participate as consulting parties at the discretion of the RE or HUD official. Participation varies with the nature and scope of a project. Refer to HUD's website for guidance on consultation, including the required timeframes for response. Consultation should begin early to enable full consideration of preservation options.

Use the [When To Consult With Tribes checklist](#) within [Notice CPD-12-006: Process for Tribal Consultation](#) to determine if the RE or HUD should invite tribes to consult on a particular project. Use the [Tribal Directory Assessment Tool \(TDAT\)](#) to identify tribes that may have an interest in the area where the project is located. Note that only HUD or the RE may initiate consultation with Tribes. Partner entities may prepare a draft letter for the RE or HUD to use to initiate consultation with tribes, but may not send the letter themselves.

**List all organizations and individuals that you believe may have an interest in the project here:**

- 1) State Historic Preservation Office (complete, see Attachment 12)
- 2) Indian Tribes, including Tribal Historic Preservation Officers
  - a. Juaneño Band of Mission Indians, Acjachemen Nation
  - b. Gabrieleño Band of Mission Indians, Kizh Nation

→ Continue to Step 2.

## Step 2 - Identify and Evaluate Historic Properties

**Provide a preliminary definition of the Area of Potential Effect (APE), either by entering the address(es) or providing a map depicting the APE.** Attach an additional page if necessary.

637 West Struck Avenue  
Orange, CA 92867

See EA Figure 1.

Gather information about known historic properties in the APE. Historic buildings, districts and archeological sites may have been identified in local, state, and national surveys and registers, local historic districts, municipal plans, town and county histories, and local history websites. If not already listed on the National Register of Historic Places, identified properties are then evaluated to see if they are eligible for the National Register. Refer to HUD's website for guidance on identifying and evaluating historic properties.

**In the space below, list historic properties identified and evaluated in the APE.**

Every historic property that may be affected by the project should be listed. For each historic property or district, include the National Register status, whether the SHPO has concurred with the finding, and whether information on the site is sensitive. Attach an additional page if necessary.

[Click here to enter text.](#)

*Provide the documentation (survey forms, Register nominations, concurrence(s) and/or objection(s), notes, and photos) that justify your National Register Status determination.*

**Was a survey of historic buildings and/or archeological sites done as part of the project?**

If the APE contains previously unsurveyed buildings or structures over 50 years old, or there is a likely presence of previously unsurveyed archeological sites, a survey may be necessary. For Archeological surveys, refer to HP Fact Sheet #6, [Guidance on Archeological Investigations in HUD Projects](#).

☐ Yes → Provide survey(s) and report(s) and continue to Step 3.

Additional notes:

[Click here to enter text.](#)

☒ No → Continue to Step 3.

**Step 3 - Assess Effects of the Project on Historic Properties**

Only properties that are listed on or eligible for the National Register of Historic Places receive further consideration under Section 106. Assess the effect(s) of the project by applying the Criteria of Adverse Effect. ([36 CFR 800.5](#)) Consider direct and indirect effects as applicable as per HUD guidance.

**Choose one of the findings below to recommend to the RE or HUD.**

*Please note: this is a recommendation only. It is **not** the official finding, which will be made by the RE or HUD, but only your suggestion as a Partner entity.*

☒ No Historic Properties Affected

**Document reason for finding:**

☒ No historic properties present. (see Attachment 12- SHPO concurrence)

☐ Historic properties present, but project will have no effect upon them.

☐ No Adverse Effect

**Document reason for finding and provide any comments below.**

Comments may include recommendations for mitigation, monitoring, a plan for unanticipated discoveries, etc.

[Click here to enter text.](#)

☐ Adverse Effect

**Document reason for finding:**

Copy and paste applicable Criteria into text box with summary and justification.

Criteria of Adverse Effect: [36 CFR 800.5](#)

[Click here to enter text.](#)

**Provide any comments below:**

Comments may include recommendations for avoidance, minimization, and/or mitigation.

[Click here to enter text.](#)

*Remember to provide all documentation that justifies your National Register Status determination and recommendations along with this worksheet.*

## **ERR #8. Noise (EA Level Reviews)**



**U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT**  
WASHINGTON, DC 20410-1000

This Worksheet was designed to be used by those “Partners” (including Public Housing Authorities, consultants, contractors, and nonprofits) who assist Responsible Entities and HUD in preparing environmental reviews, but legally cannot take full responsibilities for these reviews themselves. Responsible Entities and HUD should use the RE/HUD version of the Worksheet.

## Noise (EA Level Reviews) – PARTNER

<https://www.hudexchange.info/programs/environmental-review/noise-abatement-and-control>

**1. What activities does your project involve? Check all that apply:**

☒ New construction for residential use

NOTE: HUD assistance to new construction projects is generally prohibited if they are located in an Unacceptable zone, and HUD discourages assistance for new construction projects in Normally Unacceptable zones. See 24 CFR 51.101(a)(3) for further details.

→ Continue to Question 2.

☐ Rehabilitation of an existing residential property

NOTE: For major or substantial rehabilitation in Normally Unacceptable zones, HUD encourages mitigation to reduce levels to acceptable compliance standards. For major rehabilitation in Unacceptable zones, HUD strongly encourages mitigation to reduce levels to acceptable compliance standards. See 24 CFR 51 Subpart B for further details.

→ Continue to Question 2.

☐ None of the above

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.

**2. Complete the Preliminary Screening to identify potential noise generators in the vicinity (1000’ from a major road, 3000’ from a railroad, or 15 miles from an airport).**

**Indicate the findings of the Preliminary Screening below:**

☐ There are no noise generators found within the threshold distances above.

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing the location of the project relative to any noise generators.

☒ Noise generators were found within the threshold distances.

→ Continue to Question 3.

**3. Complete the Noise Assessment Guidelines to quantify the noise exposure. Indicate the findings of the Noise Assessment below:**

☒ Acceptable (65 decibels or less; the ceiling may be shifted to 70 decibels in circumstances described in §24 CFR 51.105(a))

**Indicate noise level here:** According to the Urban Crossroads noise study (attachment 13), exterior noise levels would be 64.8 dBA at the building's exterior façade closest to the railroad. With the implementation of mitigation measures identified below, building interior noise levels would be 39.8 dBA, which is below HUD's threshold of 45 dBA for interior spaces.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide noise analysis, including noise level and data used to complete the analysis.*

☐ Normally Unacceptable: (Above 65 decibels but not exceeding 75 decibels; the floor may be shifted to 70 decibels in circumstances described in 24 CFR 51.105(a))

**Indicate noise level here:** [Click here to enter text.](#)

If project is rehabilitation:

→ *Continue to Question 4. Provide noise analysis, including noise level and data used to complete the analysis.*

If project is new construction:

**Is the project in a largely undeveloped area<sup>1</sup>?**

☒ No

☐ Yes → ***The project requires completion of an Environmental Impact Statement (EIS) pursuant to 51.104(b)(1)(i).***

→ *Continue to Question 4. Provide noise analysis, including noise level and data used to complete the analysis.*

☐ Unacceptable: (Above 75 decibels)

**Indicate noise level here:** [Click here to enter text.](#)

If project is rehabilitation:

*HUD strongly encourages conversion of noise-exposed sites to land uses compatible with high noise levels. Consider converting this property to a non-residential use compatible with high noise levels.*

→ *Continue to Question 4. Provide noise analysis, including noise level and data used to complete the analysis, and any other relevant information.*

If project is new construction:

***The project requires completion of an Environmental Impact Statement (EIS) pursuant to 51.104(b)(1)(i). Work with HUD or the RE to either complete an EIS or obtain a waiver signed by the appropriate authority.***

→ *Continue to Question 4.*

- 4. HUD strongly encourages mitigation be used to eliminate adverse noise impacts. Work with the RE/HUD on the development of the mitigation measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.**

☒ Mitigation as follows will be implemented:

---

<sup>1</sup> A largely undeveloped area means the area within 2 miles of the project site is less than 50 percent developed with urban uses or does not have water and sewer capacity to serve the project.

- **Windows & Glass Doors:** All windows and glass doors shall be well fitted, well weather-stripped assemblies and shall have a minimum sound transmission class (STC) rating of 27.
- **Exterior Doors (Non-Glass):** All exterior doors shall be well weather-stripped and have minimum STC ratings of 27. Well-sealed perimeter gaps around the doors are essential to achieve the optimal STC rating. (2)
- **Walls:** At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal.
- **Roof:** Roof sheathing of wood construction shall be per manufacturer's specification or caulked plywood of at least 0.5 inches thick. Ceilings shall be per manufacturer's specification or well-sealed gypsum board of at least 0.5 inches thick. Insulation with at least a rating of R-19 shall be used in the attic space.
- **Ventilation:** Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g. air conditioning) or active ventilation system (e.g. fresh air supply) shall be provided which satisfies the requirements of the Uniform Building Code.

*→ Provide drawings, specifications, and other materials as needed to describe the project's noise mitigation measures.  
Continue to the Worksheet Summary.*

☐ No mitigation is necessary.

**Explain why mitigation will not be made here:**

[Click here to enter text.](#)

*→ Continue to the Worksheet Summary.*

### **Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

A noise study was completed by Urban Crossroads in March 2020 and mitigation measures are proposed to reduce interior noise levels for residential developments to below HUD thresholds of 45 dBA. With the application of the mitigation measures listed in question 4 above, indoor noise levels would be reduced from 64.8 dBA to 39.8 dBA, falling below the threshold for indoor noise at 45 dBA (see Table 7.1 of Attachment 13). In addition, noise levels at exterior living facilities (e.g. tot lots) would be below the HUD 65 dBA threshold. See Mitigation Measure 3 and Attachment 13.

**Include all documentation supporting your findings in your submission to HUD.**

## **ERR #9. Wetlands**





**U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT**  
WASHINGTON, DC 20410-1000

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## **Wetlands (CEST and EA) – Partner**

<https://www.hudexchange.info/environmental-review/wetlands-protection>

**1. Does this project involve new construction as defined in Executive Order 11990, expansion of a building’s footprint, or ground disturbance?**

The term "new construction" includes draining, dredging, channelizing, filling, diking, impounding, and related activities and construction of any structures or facilities.

☐ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

☒ Yes → *Continue to Question 2.*

**2. Will the new construction or other ground disturbance impact a wetland as defined in E.O. 11990?**

☒ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map or any other relevant documentation to explain your determination.*

☐ Yes → *Work with HUD or the RE to assist with the 8-Step Process.* *Continue to Question 3.*

**3. Does Section 55.12 state that the 8-Step Process is not required?**

☐ No, the 8-Step Process applies.

This project will require mitigation and may require elevating structure or structures. See the link to the HUD Exchange above for information on HUD’s elevation requirements.

→ *Work with the RE/HUD to assist with the 8-Step Process. Continue to Worksheet Summary.*

☐ 5-Step Process is applicable per 55.12(a).

**Provide the applicable citation at 24 CFR 55.12(a) here.**

[Click here to enter text.](#)

→ *Work with the RE/HUD to assist with the 5-Step Process. This project may require mitigation or alternations. Continue to Worksheet Summary.*

☐ 8-Step Process is inapplicable per 55.12(b).

**Provide the applicable citation at 24 CFR 55.12(b) here.**

[Click here to enter text.](#)

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to Worksheet Summary.

☐ 8-Step Process is inapplicable per 55.12(c).

**Provide the applicable citation at 24 CFR 55.12(c) here.**

[Click here to enter text.](#)

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to Worksheet Summary.

### **Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

No wetlands are located on or adjacent to the project site (see Attachment 15).

**Include all documentation supporting your findings in your submission to HUD.**

## **ERR #10. Wild and Scenic Rivers**

## Wild and Scenic Rivers (CEST and EA) – PARTNER

This Worksheet was designed to be used by those “Partners” (including Public Housing Authorities, consultants, contractors, and nonprofits) who assist Responsible Entities and HUD in preparing environmental reviews, but legally cannot take full responsibilities for these reviews themselves. Responsible Entities and HUD should use the RE/HUD version of the Worksheet.

General requirements	Legislation	Regulation
The Wild and Scenic Rivers Act provides federal protection for certain free-flowing, wild, scenic and recreational rivers designated as components or potential components of the National Wild and Scenic Rivers System (NWSRS) from the effects of construction or development.	The Wild and Scenic Rivers Act (16 U.S.C. 1271-1287), particularly section 7(b) and (c) (16 U.S.C. 1278(b) and (c))	36 CFR Part 297
References		
<a href="https://www.hudexchange.info/environmental-review/wild-and-scenic-rivers">https://www.hudexchange.info/environmental-review/wild-and-scenic-rivers</a>		

### 1. Is your project within proximity of a NWSRS river as defined below?

**Wild & Scenic Rivers:** These rivers or river segments have been designated by Congress or by states (with the concurrence of the Secretary of the Interior) as wild, scenic, or recreational

**Study Rivers:** These rivers or river segments are being studied as a potential component of the Wild & Scenic River system.

**Nationwide Rivers Inventory (NRI):** The National Park Service has compiled and maintains the NRI, a register of river segments that potentially qualify as national wild, scenic, or recreational river areas

☒ No

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Provide documentation used to make your determination, such as a map identifying the project site and its surrounding area or a list of rivers in your region in the Screen Summary at the conclusion of this screen.

☐ Yes, the project is in proximity of a Nationwide Rivers Inventory (NRI) River.

→ Continue to Question 2.

**2. Could the project do *any* of the following?**

- Have a direct and adverse effect within Wild and Scenic River Boundaries,
- Invade the area or unreasonably diminish the river outside Wild and Scenic River Boundaries, or
- Have an adverse effect on the natural, cultural, and/or recreational values of a NRI segment.

Consultation with the appropriate federal/state/local/tribal Managing Agency(s) is required, pursuant to Section 7 of the Act, to determine if the proposed project may have an adverse effect on a Wild & Scenic River or a Study River and, if so, to determine the appropriate avoidance or mitigation measures.

Note: Concurrence may be assumed if the Managing Agency does not respond within 30 days; however, you are still obligated to avoid or mitigate adverse effects on the rivers identified in the NWSRS

- ☐ No, the Managing Agency has concurred that the proposed project will not alter, directly, or indirectly, any of the characteristics that qualifies or potentially qualifies the river for inclusion in the NWSRS.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Provide documentation of the consultation (including the Managing Agency's concurrence) and any other documentation used to make your determination.*

- ☐ Yes, the Managing Agency was consulted and the proposed project may alter, directly, or indirectly, any of the characteristics that qualifies or potentially qualifies the river for inclusion in the NWSRS.

→ *The RE/HUD must work with the Managing Agency to identify mitigation measures to mitigate the impact or effect of the project on the river.*

### **Worksheet Summary**

#### **Compliance Determination**

Provide a clear description of your determination and a synopsis of the information that it was based on, such as:

No wild or scenic rivers are located on or adjacent to the project site (see Attachment 16).

#### **Are formal compliance steps or mitigation required?**

☐ Yes

☒ No

## **ERR #11. Environmental Justice**



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

This Worksheet was designed to be used by those “Partners” (including Public Housing Authorities, consultants, contractors, and nonprofits) who assist Responsible Entities and HUD in preparing environmental reviews, but legally cannot take full responsibilities for these reviews themselves. Responsible Entities and HUD should use the RE/HUD version of the Worksheet.

## Environmental Justice (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/environmental-justice>

**HUD strongly encourages starting the Environmental Justice analysis only after all other laws and authorities, including Environmental Assessment factors if necessary, have been completed.**

**1. Were any adverse environmental impacts identified in any other compliance review portion of this project’s total environmental review?**

☒ Yes → *Continue to Question 2.*

☐ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

**2. Were these adverse environmental impacts disproportionately high for low-income and/or minority communities?**

☐ Yes

**Explain:**

*Click here to enter text.*

→ *The RE/HUD must work with the affected low-income or minority community to decide what mitigation actions, if any, will be taken. Provide any supporting documentation.*

☒ No

**Explain:**

**Air Quality:** With the implementation of mitigation measures required for the control of fugitive dust at construction sites, no disproportionate impacts to low income and/or minority communities would occur as a result of impacts to air quality.

**Hazards Materials:** With implementation of mitigation measures to reduce potential impacts related to soil vapor, no disproportionate impacts to low income and/or minority communities would occur as a result of hazardous materials.

**Noise:** With the implementation of noise mitigation measures outlined in the Urban Crossroads noise impact analysis (see Attachment 13), interior noise levels would be below the 65 dBA HUD noise threshold.



**Erosion and Storm Water Runoff:** With the implementation of stormwater mitigation measures outlined in a Stormwater Management Plan, no disproportionate impacts to low income and/or minority communities would occur as a result of erosion, drainage, and stormwater runoff.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

### **Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

**Air Quality:** Construction activities such as land clearing and grading may cause temporary adverse impacts to air quality from fugitive dust during construction of the residential community; however, with the implementation of air quality mitigation measures required for fugitive dust required by SCQAMD Rule 403 (see Mitigation Measure 1 in Environmental Assessment), impacts to air quality would be minimized or avoided. Therefore, no disproportionate impacts to low income and/or minority communities would occur as a result of fugitive dust.

**Hazardous Materials:** Soil vapor concentrations of total petroleum hydrocarbons as gasoline and volatile organic compounds were identified during soil sampling conducted as part of the the Phase II Environmental Site Assessment; however, with the geotechnical removal and re-compaction of the upper approximate 5 feet of on sit soils and placement of a vapor barrier (see Mitigation Measure 2 in Environmental Assessment), no impacts to future residents would occur and no disproportionate impacts to low income and/or minority communities would occur as a result of asbestos-containing materials.

**Noise:** Due to the proposed project's close proximity to the active Metrolink Inland Empire-Orange County rail lines and roads, such as Katella Avenue, the project location (prior to development of the proposed project) exceeds HUD's ambient noise thresholds; however, with the application of the mitigation measures identified as Mitigation Measure 3 in the Environmental Assessment, indoor noise levels would be reduced from 64.8 dBA to 39.8 dBA, falling below the threshold for indoor noise at 45 dBA (see Table 7.1 of Attachment 13). No impacts to future residents would occur and no disproportionate impacts to low income and/or minority communities would occur as a result of ambient noise sources.

**Erosion/ Drainage/ Storm Water Runoff:** Construction activities may temporarily increase impacts from erosion, drainage, and stormwater runoff. However, with the implementation of best management practices per the guidance of the California Stormwater Quality Association Stormwater Best Management Practice Handbooks for Construction, for New Development/Redevelopment, and for Industrial and Commercial (or other similar source as approved by Orange County) and the requirements of the National Pollutant Discharge Elimination System construction stormwater quality permit (see Mitigation Measure 6 in Environmental Assessment), the potential temporary impacts would be minimized and kept on-site to the greatest extent possible. Therefore, no disproportionate impacts to low income and/or minority communities would occur as a result of erosion, drainage, and stormwater runoff.

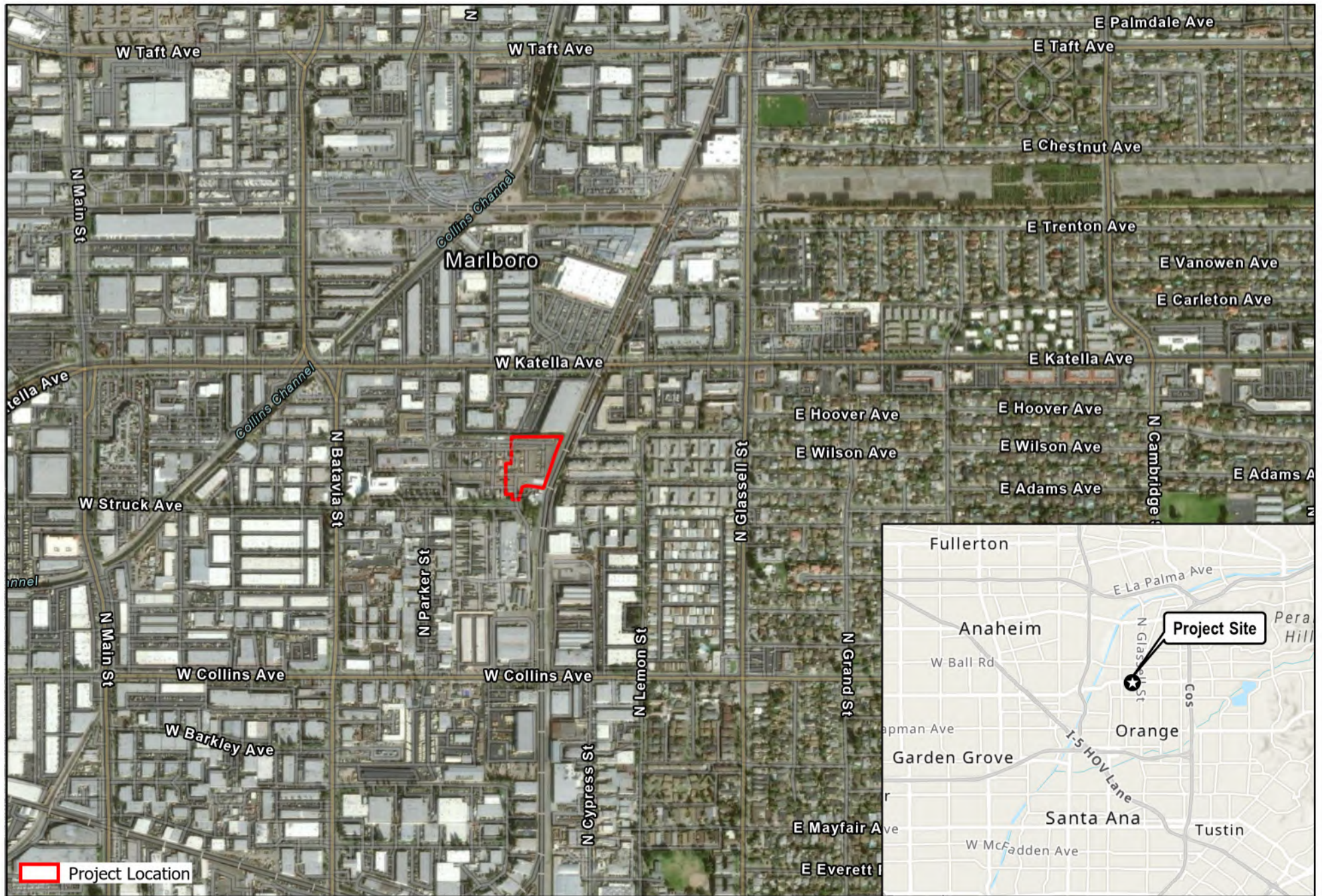
**Include all documentation supporting your findings in your submission to HUD.**

Assessment of the environmental factors for the proposed development revealed that the project would not have adverse impacts to land development, community facilities and services, or natural features.

The project would have minor beneficial impacts to socioeconomic aspects of the surrounding community and target population.

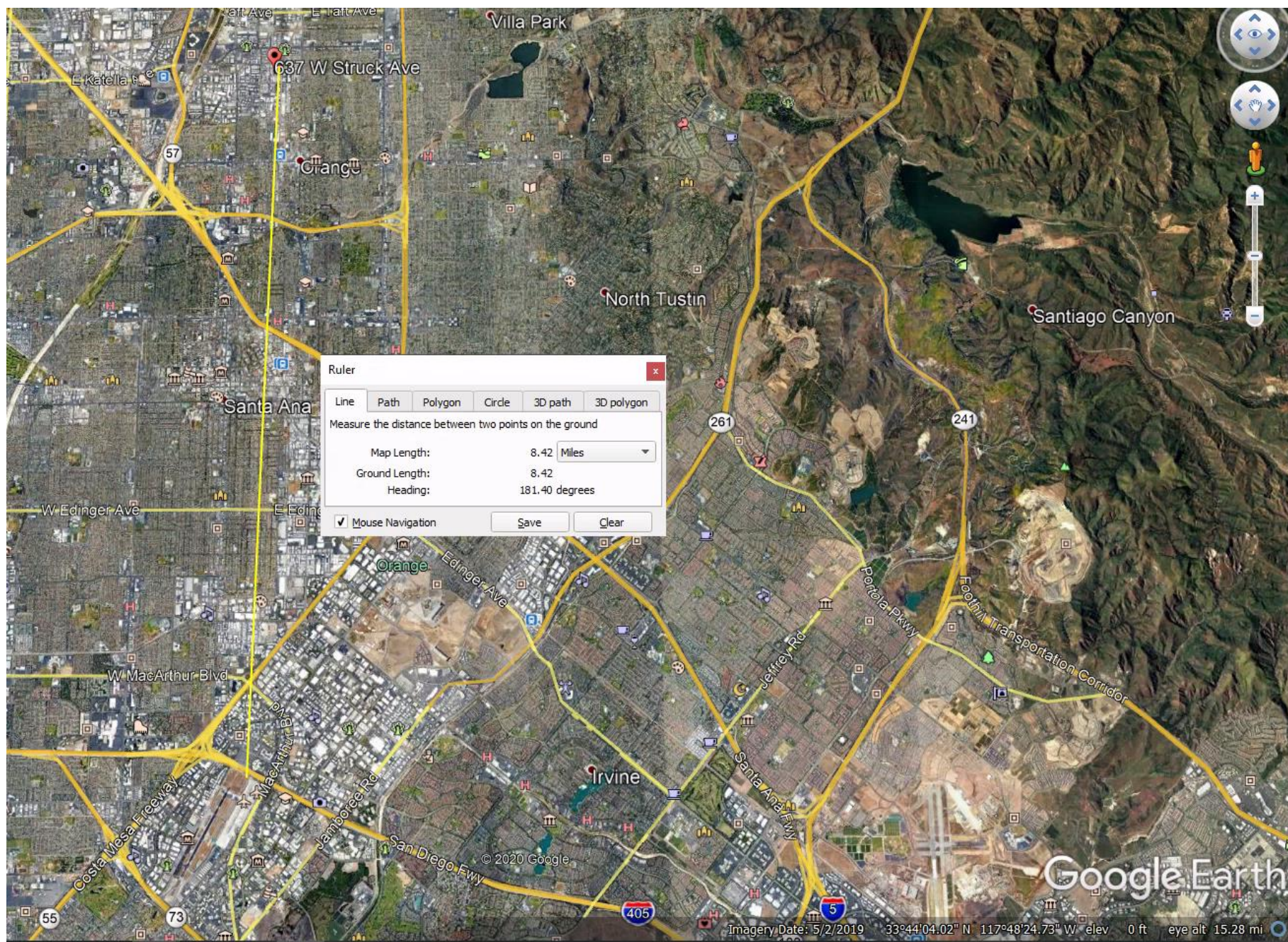
## **Attachment 1. Project Location**





## **Attachment 2. Proximity to Airport**





Ruler

Line Path Polygon Circle 3D path 3D polygon

Measure the distance between two points on the ground

Map Length: 8.42 Miles

Ground Length: 8.42

Heading: 181.40 degrees

☒ Mouse Navigation Save Clear



### **Attachment 3. OCY Coastal Barrier Resources Map**



BASEMAPS >

MAP LAYERS >

☒ CBRS Units



Click [here](#) to learn more about CBRS Units.



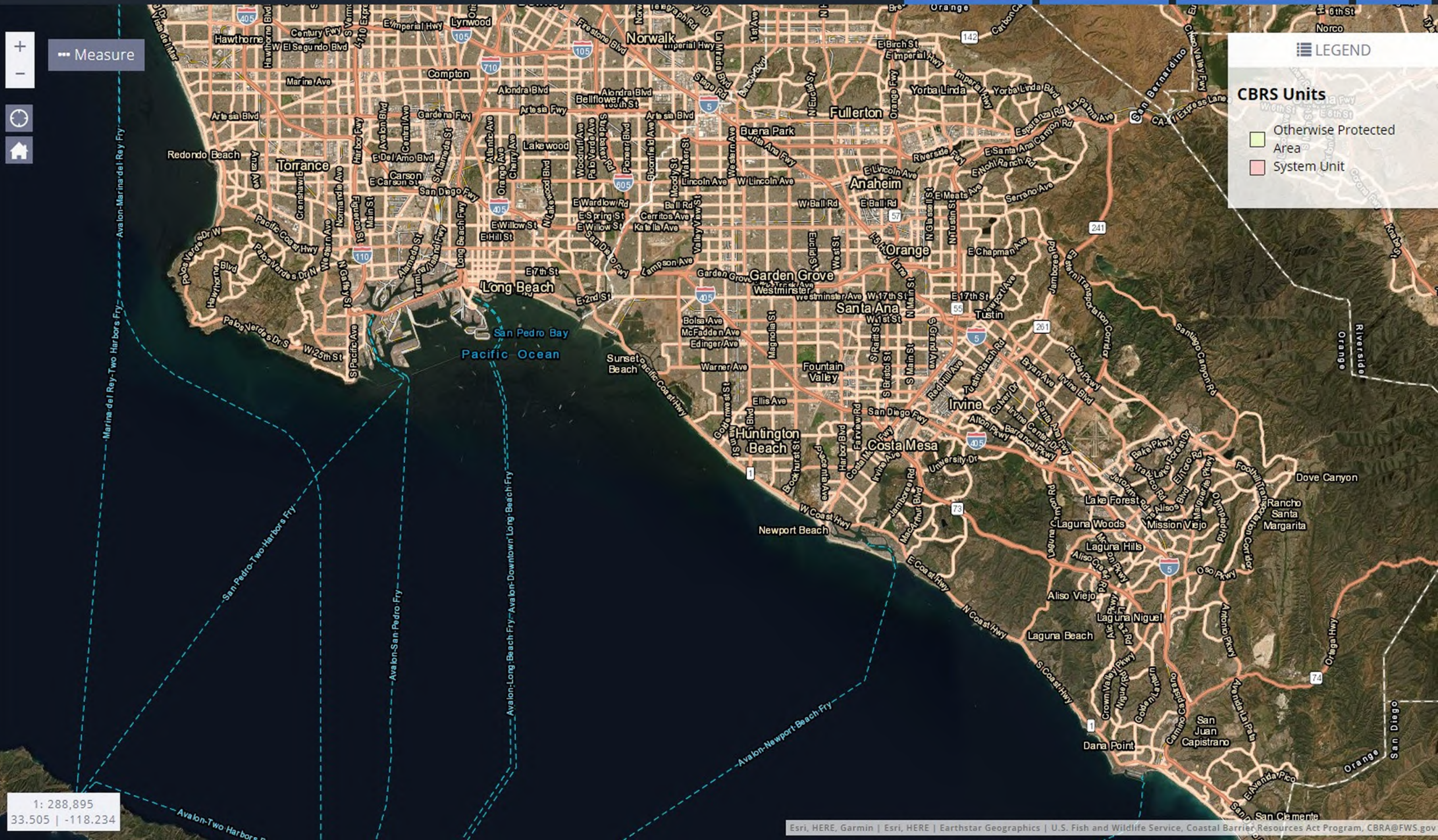
Measure



LEGEND

CBRS Units

- Otherwise Protected Area
- System Unit



1: 288,895  
33.505 | -118.234



#### **Attachment 4. FEMA Flood Map**

# National Flood Hazard Layer FIRMette



## Legend

SEE FTS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, X, AE, A9</i>
		With BFE or Depth <i>Zone AE, A9, A9, A9, VE, A9</i>
		Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
		Area with Flood Risk due to Levee <i>Zone D</i>

OTHER AREAS		Area of Minimal Flood Hazard <i>Zone X</i>
		Effective LOMRs
		Area of Undetermined Flood Hazard <i>Zone D</i>

GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall

OTHER FEATURES		Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Base line
OTHER FEATURES		Profile Baseline
		Hydrographic Feature

MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/13/2020 at 1:31:53 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



## **Attachment 5. OCY CalEEMod Report**

## Orange Corporate Yard Housing - Orange County, Annual

## Orange Corporate Yard Housing

### Orange County, Annual

## 1.0 Project Characteristics

---

### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	133.00	Space	1.20	53,200.00	0
Apartments Mid Rise	62.00	Dwelling Unit	1.62	71,503.00	177

### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	30
<b>Climate Zone</b>	8			<b>Operational Year</b>	2023
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MWhr)</b>	702.44	<b>CH4 Intensity (lb/MWhr)</b>	0.029	<b>N2O Intensity (lb/MWhr)</b>	0.006

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - Proposed housing project in Orange County

Land Use - 62 mid rise apartment units and 133 parking spaces proposed on 2.82 acres

Construction Phase - Adjusted durations based on anticipated construction schedule

Off-road Equipment - Default

Trips and VMT - Default

Grading - 914 CY soils export

Architectural Coating - Default

Vehicle Trips - Default

Woodstoves - No fireplaces assumed

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	3.00	4.00
tblConstructionPhase	NumDays	6.00	9.00
tblConstructionPhase	NumDays	220.00	316.00
tblConstructionPhase	NumDays	10.00	14.00
tblConstructionPhase	NumDays	10.00	14.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	52.70	0.00
tblFireplaces	NumberNoFireplace	6.20	62.00
tblFireplaces	NumberWood	3.10	0.00
tblGrading	MaterialExported	0.00	914.00
tblLandUse	LandUseSquareFeet	62,000.00	71,503.00
tblLandUse	LotAcreage	1.63	1.62
tblWoodstoves	NumberCatalytic	3.10	0.00
tblWoodstoves	NumberNoncatalytic	3.10	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

## 2.0 Emissions Summary

### 2.1 Overall Construction

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1250	0.9973	0.8903	1.9100e-003	0.0746	0.0456	0.1202	0.0267	0.0435	0.0702	0.0000	165.4113	165.4113	0.0264	0.0000	166.0705
2022	0.4742	1.8390	1.9103	4.0200e-003	0.0930	0.0817	0.1747	0.0249	0.0782	0.1031	0.0000	345.8309	345.8309	0.0519	0.0000	347.1279
Maximum	0.4742	1.8390	1.9103	4.0200e-003	0.0930	0.0817	0.1747	0.0267	0.0782	0.1031	0.0000	345.8309	345.8309	0.0519	0.0000	347.1279

#### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1250	0.9973	0.8903	1.9100e-003	0.0746	0.0456	0.1202	0.0267	0.0435	0.0702	0.0000	165.4112	165.4112	0.0264	0.0000	166.0704
2022	0.4742	1.8390	1.9103	4.0200e-003	0.0930	0.0817	0.1747	0.0249	0.0782	0.1031	0.0000	345.8306	345.8306	0.0519	0.0000	347.1276
Maximum	0.4742	1.8390	1.9103	4.0200e-003	0.0930	0.0817	0.1747	0.0267	0.0782	0.1031	0.0000	345.8306	345.8306	0.0519	0.0000	347.1276

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	8-1-2021	10-31-2021	0.6801	0.6801
2	11-1-2021	1-31-2022	0.6365	0.6365
3	2-1-2022	4-30-2022	0.5790	0.5790
4	5-1-2022	7-31-2022	0.5977	0.5977
5	8-1-2022	9-30-2022	0.3963	0.3963
		Highest	0.6801	0.6801

## 2.2 Overall Operational

### Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3044	7.3900e-003	0.6412	3.0000e-005		3.5500e-003	3.5500e-003		3.5500e-003	3.5500e-003	0.0000	1.0477	1.0477	1.0100e-003	0.0000	1.0731
Energy	3.8200e-003	0.0327	0.0139	2.1000e-004		2.6400e-003	2.6400e-003		2.6400e-003	2.6400e-003	0.0000	122.2713	122.2713	4.2100e-003	1.4100e-003	122.7981
Mobile	0.0961	0.3671	1.3491	5.4300e-003	0.5224	3.7400e-003	0.5261	0.1399	3.4700e-003	0.1434	0.0000	501.4775	501.4775	0.0199	0.0000	501.9738
Waste						0.0000	0.0000		0.0000	0.0000	5.7893	0.0000	5.7893	0.3421	0.0000	14.3428
Water						0.0000	0.0000		0.0000	0.0000	1.2816	25.7741	27.0557	0.1327	3.3300e-003	31.3648
<b>Total</b>	<b>0.4043</b>	<b>0.4071</b>	<b>2.0042</b>	<b>5.6700e-003</b>	<b>0.5224</b>	<b>9.9300e-003</b>	<b>0.5323</b>	<b>0.1399</b>	<b>9.6600e-003</b>	<b>0.1496</b>	<b>7.0709</b>	<b>650.5706</b>	<b>657.6415</b>	<b>0.4999</b>	<b>4.7400e-003</b>	<b>671.5525</b>

### Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3044	7.3900e-003	0.6412	3.0000e-005		3.5500e-003	3.5500e-003		3.5500e-003	3.5500e-003	0.0000	1.0477	1.0477	1.0100e-003	0.0000	1.0731
Energy	3.8200e-003	0.0327	0.0139	2.1000e-004		2.6400e-003	2.6400e-003		2.6400e-003	2.6400e-003	0.0000	122.2713	122.2713	4.2100e-003	1.4100e-003	122.7981
Mobile	0.0961	0.3671	1.3491	5.4300e-003	0.5224	3.7400e-003	0.5261	0.1399	3.4700e-003	0.1434	0.0000	501.4775	501.4775	0.0199	0.0000	501.9738
Waste						0.0000	0.0000		0.0000	0.0000	5.7893	0.0000	5.7893	0.3421	0.0000	14.3428
Water						0.0000	0.0000		0.0000	0.0000	1.2816	25.7741	27.0557	0.1327	3.3300e-003	31.3648
<b>Total</b>	<b>0.4043</b>	<b>0.4071</b>	<b>2.0042</b>	<b>5.6700e-003</b>	<b>0.5224</b>	<b>9.9300e-003</b>	<b>0.5323</b>	<b>0.1399</b>	<b>9.6600e-003</b>	<b>0.1496</b>	<b>7.0709</b>	<b>650.5706</b>	<b>657.6415</b>	<b>0.4999</b>	<b>4.7400e-003</b>	<b>671.5525</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### 3.0 Construction Detail

#### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	8/1/2021	8/5/2021	5	4	
2	Grading	Grading	8/6/2021	8/18/2021	5	9	
3	Building Construction	Building Construction	8/19/2021	11/3/2022	5	316	
4	Paving	Paving	11/4/2022	11/23/2022	5	14	
5	Architectural Coating	Architectural Coating	11/24/2022	12/13/2022	5	14	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 4.5

Acres of Paving: 1.2

Residential Indoor: 144,794; Residential Outdoor: 48,265; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking

#### OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42



Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

### Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	114.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	67.00	15.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

#### 3.2 Site Preparation - 2021

##### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.1800e-003	0.0000	3.1800e-003	3.4000e-004	0.0000	3.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0900e-003	0.0366	0.0215	5.0000e-005		1.4000e-003	1.4000e-003		1.2900e-003	1.2900e-003	0.0000	4.3053	4.3053	1.3900e-003	0.0000	4.3401
Total	3.0900e-003	0.0366	0.0215	5.0000e-005	3.1800e-003	1.4000e-003	4.5800e-003	3.4000e-004	1.2900e-003	1.6300e-003	0.0000	4.3053	4.3053	1.3900e-003	0.0000	4.3401

##### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.6000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1468	0.1468	0.0000	0.0000	0.1468
<b>Total</b>	<b>6.0000e-005</b>	<b>4.0000e-005</b>	<b>4.6000e-004</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>0.1468</b>	<b>0.1468</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1468</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.1800e-003	0.0000	3.1800e-003	3.4000e-004	0.0000	3.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0900e-003	0.0366	0.0215	5.0000e-005		1.4000e-003	1.4000e-003		1.2900e-003	1.2900e-003	0.0000	4.3053	4.3053	1.3900e-003	0.0000	4.3401
<b>Total</b>	<b>3.0900e-003</b>	<b>0.0366</b>	<b>0.0215</b>	<b>5.0000e-005</b>	<b>3.1800e-003</b>	<b>1.4000e-003</b>	<b>4.5800e-003</b>	<b>3.4000e-004</b>	<b>1.2900e-003</b>	<b>1.6300e-003</b>	<b>0.0000</b>	<b>4.3053</b>	<b>4.3053</b>	<b>1.3900e-003</b>	<b>0.0000</b>	<b>4.3401</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.6000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1468	0.1468	0.0000	0.0000	0.1468
<b>Total</b>	<b>6.0000e-005</b>	<b>4.0000e-005</b>	<b>4.6000e-004</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>0.1468</b>	<b>0.1468</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1468</b>

### 3.3 Grading - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0295	0.0000	0.0295	0.0152	0.0000	0.0152	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.2200e-003	0.0910	0.0439	9.0000e-005		4.1200e-003	4.1200e-003		3.7900e-003	3.7900e-003	0.0000	8.1468	8.1468	2.6300e-003	0.0000	8.2126
<b>Total</b>	<b>8.2200e-003</b>	<b>0.0910</b>	<b>0.0439</b>	<b>9.0000e-005</b>	<b>0.0295</b>	<b>4.1200e-003</b>	<b>0.0337</b>	<b>0.0152</b>	<b>3.7900e-003</b>	<b>0.0190</b>	<b>0.0000</b>	<b>8.1468</b>	<b>8.1468</b>	<b>2.6300e-003</b>	<b>0.0000</b>	<b>8.2126</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.1000e-004	0.0149	4.0700e-003	4.0000e-005	9.8000e-004	5.0000e-005	1.0200e-003	2.7000e-004	4.0000e-005	3.1000e-004	0.0000	4.3294	4.3294	4.6000e-004	0.0000	4.3408
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.2900e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4127	0.4127	1.0000e-005	0.0000	0.4130
<b>Total</b>	<b>5.7000e-004</b>	<b>0.0151</b>	<b>5.3600e-003</b>	<b>4.0000e-005</b>	<b>1.4700e-003</b>	<b>5.0000e-005</b>	<b>1.5200e-003</b>	<b>4.0000e-004</b>	<b>4.0000e-005</b>	<b>4.4000e-004</b>	<b>0.0000</b>	<b>4.7422</b>	<b>4.7422</b>	<b>4.7000e-004</b>	<b>0.0000</b>	<b>4.7538</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0295	0.0000	0.0295	0.0152	0.0000	0.0152	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.2200e-003	0.0910	0.0439	9.0000e-005		4.1200e-003	4.1200e-003		3.7900e-003	3.7900e-003	0.0000	8.1467	8.1467	2.6300e-003	0.0000	8.2126
<b>Total</b>	<b>8.2200e-003</b>	<b>0.0910</b>	<b>0.0439</b>	<b>9.0000e-005</b>	<b>0.0295</b>	<b>4.1200e-003</b>	<b>0.0337</b>	<b>0.0152</b>	<b>3.7900e-003</b>	<b>0.0190</b>	<b>0.0000</b>	<b>8.1467</b>	<b>8.1467</b>	<b>2.6300e-003</b>	<b>0.0000</b>	<b>8.2126</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.1000e-004	0.0149	4.0700e-003	4.0000e-005	9.8000e-004	5.0000e-005	1.0200e-003	2.7000e-004	4.0000e-005	3.1000e-004	0.0000	4.3294	4.3294	4.6000e-004	0.0000	4.3408
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.2900e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4127	0.4127	1.0000e-005	0.0000	0.4130
<b>Total</b>	<b>5.7000e-004</b>	<b>0.0151</b>	<b>5.3600e-003</b>	<b>4.0000e-005</b>	<b>1.4700e-003</b>	<b>5.0000e-005</b>	<b>1.5200e-003</b>	<b>4.0000e-004</b>	<b>4.0000e-005</b>	<b>4.4000e-004</b>	<b>0.0000</b>	<b>4.7422</b>	<b>4.7422</b>	<b>4.7000e-004</b>	<b>0.0000</b>	<b>4.7538</b>

## 3.4 Building Construction - 2021

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Off-Road	0.0992	0.7773	0.7063	1.2100e-003		0.0396	0.0396		0.0380	0.0380	0.0000	100.7096	100.7096	0.0198	0.0000	101.2050
<b>Total</b>	<b>0.0992</b>	<b>0.7773</b>	<b>0.7063</b>	<b>1.2100e-003</b>		<b>0.0396</b>	<b>0.0396</b>		<b>0.0380</b>	<b>0.0380</b>	<b>0.0000</b>	<b>100.7096</b>	<b>100.7096</b>	<b>0.0198</b>	<b>0.0000</b>	<b>101.2050</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9800e-003	0.0693	0.0194	1.8000e-004	4.5800e-003	1.4000e-004	4.7200e-003	1.3200e-003	1.4000e-004	1.4600e-003	0.0000	17.5567	17.5567	1.4200e-003	0.0000	17.5922
Worker	0.0119	8.0000e-003	0.0934	3.3000e-004	0.0357	2.4000e-004	0.0359	9.4700e-003	2.2000e-004	9.6900e-003	0.0000	29.8041	29.8041	6.4000e-004	0.0000	29.8200
<b>Total</b>	<b>0.0139</b>	<b>0.0773</b>	<b>0.1128</b>	<b>5.1000e-004</b>	<b>0.0403</b>	<b>3.8000e-004</b>	<b>0.0406</b>	<b>0.0108</b>	<b>3.6000e-004</b>	<b>0.0112</b>	<b>0.0000</b>	<b>47.3607</b>	<b>47.3607</b>	<b>2.0600e-003</b>	<b>0.0000</b>	<b>47.4122</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0992	0.7773	0.7063	1.2100e-003		0.0396	0.0396		0.0380	0.0380	0.0000	100.7095	100.7095	0.0198	0.0000	101.2049
<b>Total</b>	<b>0.0992</b>	<b>0.7773</b>	<b>0.7063</b>	<b>1.2100e-003</b>		<b>0.0396</b>	<b>0.0396</b>		<b>0.0380</b>	<b>0.0380</b>	<b>0.0000</b>	<b>100.7095</b>	<b>100.7095</b>	<b>0.0198</b>	<b>0.0000</b>	<b>101.2049</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9800e-003	0.0693	0.0194	1.8000e-004	4.5800e-003	1.4000e-004	4.7200e-003	1.3200e-003	1.4000e-004	1.4600e-003	0.0000	17.5567	17.5567	1.4200e-003	0.0000	17.5922
Worker	0.0119	8.0000e-003	0.0934	3.3000e-004	0.0357	2.4000e-004	0.0359	9.4700e-003	2.2000e-004	9.6900e-003	0.0000	29.8041	29.8041	6.4000e-004	0.0000	29.8200
<b>Total</b>	<b>0.0139</b>	<b>0.0773</b>	<b>0.1128</b>	<b>5.1000e-004</b>	<b>0.0403</b>	<b>3.8000e-004</b>	<b>0.0406</b>	<b>0.0108</b>	<b>3.6000e-004</b>	<b>0.0112</b>	<b>0.0000</b>	<b>47.3607</b>	<b>47.3607</b>	<b>2.0600e-003</b>	<b>0.0000</b>	<b>47.4122</b>

### 3.4 Building Construction - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2032	1.5991	1.5717	2.7400e-003		0.0769	0.0769		0.0737	0.0737	0.0000	227.4097	227.4097	0.0439	0.0000	228.5066
<b>Total</b>	<b>0.2032</b>	<b>1.5991</b>	<b>1.5717</b>	<b>2.7400e-003</b>		<b>0.0769</b>	<b>0.0769</b>		<b>0.0737</b>	<b>0.0737</b>	<b>0.0000</b>	<b>227.4097</b>	<b>227.4097</b>	<b>0.0439</b>	<b>0.0000</b>	<b>228.5066</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2100e-003	0.1479	0.0423	4.0000e-004	0.0103	2.8000e-004	0.0106	2.9800e-003	2.7000e-004	3.2500e-003	0.0000	39.2474	39.2474	3.1100e-003	0.0000	39.3250
Worker	0.0254	0.0164	0.1965	7.2000e-004	0.0805	5.2000e-004	0.0811	0.0214	4.8000e-004	0.0219	0.0000	64.7984	64.7984	1.3100e-003	0.0000	64.8311
<b>Total</b>	<b>0.0296</b>	<b>0.1643</b>	<b>0.2388</b>	<b>1.1200e-003</b>	<b>0.0909</b>	<b>8.0000e-004</b>	<b>0.0917</b>	<b>0.0244</b>	<b>7.5000e-004</b>	<b>0.0251</b>	<b>0.0000</b>	<b>104.0458</b>	<b>104.0458</b>	<b>4.4200e-003</b>	<b>0.0000</b>	<b>104.1561</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2032	1.5991	1.5717	2.7400e-003		0.0769	0.0769		0.0737	0.0737	0.0000	227.4094	227.4094	0.0439	0.0000	228.5063
<b>Total</b>	<b>0.2032</b>	<b>1.5991</b>	<b>1.5717</b>	<b>2.7400e-003</b>		<b>0.0769</b>	<b>0.0769</b>		<b>0.0737</b>	<b>0.0737</b>	<b>0.0000</b>	<b>227.4094</b>	<b>227.4094</b>	<b>0.0439</b>	<b>0.0000</b>	<b>228.5063</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2100e-003	0.1479	0.0423	4.0000e-004	0.0103	2.8000e-004	0.0106	2.9800e-003	2.7000e-004	3.2500e-003	0.0000	39.2474	39.2474	3.1100e-003	0.0000	39.3250
Worker	0.0254	0.0164	0.1965	7.2000e-004	0.0805	5.2000e-004	0.0811	0.0214	4.8000e-004	0.0219	0.0000	64.7984	64.7984	1.3100e-003	0.0000	64.8311
<b>Total</b>	<b>0.0296</b>	<b>0.1643</b>	<b>0.2388</b>	<b>1.1200e-003</b>	<b>0.0909</b>	<b>8.0000e-004</b>	<b>0.0917</b>	<b>0.0244</b>	<b>7.5000e-004</b>	<b>0.0251</b>	<b>0.0000</b>	<b>104.0458</b>	<b>104.0458</b>	<b>4.4200e-003</b>	<b>0.0000</b>	<b>104.1561</b>

### 3.5 Paving - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.5900e-003	0.0653	0.0819	1.2000e-004		3.4100e-003	3.4100e-003		3.1500e-003	3.1500e-003	0.0000	10.8570	10.8570	3.4400e-003	0.0000	10.9431
Paving	1.5700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>8.1600e-003</b>	<b>0.0653</b>	<b>0.0819</b>	<b>1.2000e-004</b>		<b>3.4100e-003</b>	<b>3.4100e-003</b>		<b>3.1500e-003</b>	<b>3.1500e-003</b>	<b>0.0000</b>	<b>10.8570</b>	<b>10.8570</b>	<b>3.4400e-003</b>	<b>0.0000</b>	<b>10.9431</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.3000e-004	2.8100e-003	1.0000e-005	1.1500e-003	1.0000e-005	1.1600e-003	3.1000e-004	1.0000e-005	3.1000e-004	0.0000	0.9274	0.9274	2.0000e-005	0.0000	0.9279
<b>Total</b>	<b>3.6000e-004</b>	<b>2.3000e-004</b>	<b>2.8100e-003</b>	<b>1.0000e-005</b>	<b>1.1500e-003</b>	<b>1.0000e-005</b>	<b>1.1600e-003</b>	<b>3.1000e-004</b>	<b>1.0000e-005</b>	<b>3.1000e-004</b>	<b>0.0000</b>	<b>0.9274</b>	<b>0.9274</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.9279</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
Off-Road	6.5900e-003	0.0653	0.0819	1.2000e-004		3.4100e-003	3.4100e-003		3.1500e-003	3.1500e-003	0.0000	10.8570	10.8570	3.4400e-003	0.0000	10.9430
Paving	1.5700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>8.1600e-003</b>	<b>0.0653</b>	<b>0.0819</b>	<b>1.2000e-004</b>		<b>3.4100e-003</b>	<b>3.4100e-003</b>		<b>3.1500e-003</b>	<b>3.1500e-003</b>	<b>0.0000</b>	<b>10.8570</b>	<b>10.8570</b>	<b>3.4400e-003</b>	<b>0.0000</b>	<b>10.9430</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.3000e-004	2.8100e-003	1.0000e-005	1.1500e-003	1.0000e-005	1.1600e-003	3.1000e-004	1.0000e-005	3.1000e-004	0.0000	0.9274	0.9274	2.0000e-005	0.0000	0.9279
<b>Total</b>	<b>3.6000e-004</b>	<b>2.3000e-004</b>	<b>2.8100e-003</b>	<b>1.0000e-005</b>	<b>1.1500e-003</b>	<b>1.0000e-005</b>	<b>1.1600e-003</b>	<b>3.1000e-004</b>	<b>1.0000e-005</b>	<b>3.1000e-004</b>	<b>0.0000</b>	<b>0.9274</b>	<b>0.9274</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.9279</b>

### 3.6 Architectural Coating - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2311					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4300e-003	9.8600e-003	0.0127	2.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	1.7873	1.7873	1.2000e-004	0.0000	1.7902
<b>Total</b>	<b>0.2325</b>	<b>9.8600e-003</b>	<b>0.0127</b>	<b>2.0000e-005</b>		<b>5.7000e-004</b>	<b>5.7000e-004</b>		<b>5.7000e-004</b>	<b>5.7000e-004</b>	<b>0.0000</b>	<b>1.7873</b>	<b>1.7873</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>1.7902</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.0000e-004	2.4400e-003	1.0000e-005	1.0000e-003	1.0000e-005	1.0100e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8037	0.8037	2.0000e-005	0.0000	0.8042
<b>Total</b>	<b>3.2000e-004</b>	<b>2.0000e-004</b>	<b>2.4400e-003</b>	<b>1.0000e-005</b>	<b>1.0000e-003</b>	<b>1.0000e-005</b>	<b>1.0100e-003</b>	<b>2.7000e-004</b>	<b>1.0000e-005</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>0.8037</b>	<b>0.8037</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.8042</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2311					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4300e-003	9.8600e-003	0.0127	2.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	1.7873	1.7873	1.2000e-004	0.0000	1.7902
<b>Total</b>	<b>0.2325</b>	<b>9.8600e-003</b>	<b>0.0127</b>	<b>2.0000e-005</b>		<b>5.7000e-004</b>	<b>5.7000e-004</b>		<b>5.7000e-004</b>	<b>5.7000e-004</b>	<b>0.0000</b>	<b>1.7873</b>	<b>1.7873</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>1.7902</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.0000e-004	2.4400e-003	1.0000e-005	1.0000e-003	1.0000e-005	1.0100e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8037	0.8037	2.0000e-005	0.0000	0.8042
Total	3.2000e-004	2.0000e-004	2.4400e-003	1.0000e-005	1.0000e-003	1.0000e-005	1.0100e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8037	0.8037	2.0000e-005	0.0000	0.8042

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0961	0.3671	1.3491	5.4300e-003	0.5224	3.7400e-003	0.5261	0.1399	3.4700e-003	0.1434	0.0000	501.4775	501.4775	0.0199	0.0000	501.9738
Unmitigated	0.0961	0.3671	1.3491	5.4300e-003	0.5224	3.7400e-003	0.5261	0.1399	3.4700e-003	0.1434	0.0000	501.4775	501.4775	0.0199	0.0000	501.9738

### 4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	412.30	396.18	363.32	1,377,112	1,377,112
Parking Lot	0.00	0.00	0.00		
Total	412.30	396.18	363.32	1,377,112	1,377,112

### 4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

#### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.563406	0.043070	0.209298	0.109958	0.015015	0.005784	0.026182	0.017546	0.001775	0.001524	0.004941	0.000598	0.000904
Parking Lot	0.563406	0.043070	0.209298	0.109958	0.015015	0.005784	0.026182	0.017546	0.001775	0.001524	0.004941	0.000598	0.000904

### 5.0 Energy Detail

Historical Energy Use: N

#### 5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	84.4629	84.4629	3.4900e-003	7.2000e-004	84.7651
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	84.4629	84.4629	3.4900e-003	7.2000e-004	84.7651
NaturalGas Mitigated	3.8200e-003	0.0327	0.0139	2.1000e-004		2.6400e-003	2.6400e-003		2.6400e-003	2.6400e-003	0.0000	37.8084	37.8084	7.2000e-004	6.9000e-004	38.0331
NaturalGas Unmitigated	3.8200e-003	0.0327	0.0139	2.1000e-004		2.6400e-003	2.6400e-003		2.6400e-003	2.6400e-003	0.0000	37.8084	37.8084	7.2000e-004	6.9000e-004	38.0331

#### 5.2 Energy by Land Use - NaturalGas

##### Unmitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	708503	3.8200e-003	0.0327	0.0139	2.1000e-004		2.6400e-003	2.6400e-003		2.6400e-003	2.6400e-003	0.0000	37.8084	37.8084	7.2000e-004	6.9000e-004	38.0331
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>3.8200e-003</b>	<b>0.0327</b>	<b>0.0139</b>	<b>2.1000e-004</b>		<b>2.6400e-003</b>	<b>2.6400e-003</b>		<b>2.6400e-003</b>	<b>2.6400e-003</b>	<b>0.0000</b>	<b>37.8084</b>	<b>37.8084</b>	<b>7.2000e-004</b>	<b>6.9000e-004</b>	<b>38.0331</b>

### Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	708503	3.8200e-003	0.0327	0.0139	2.1000e-004		2.6400e-003	2.6400e-003		2.6400e-003	2.6400e-003	0.0000	37.8084	37.8084	7.2000e-004	6.9000e-004	38.0331
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>3.8200e-003</b>	<b>0.0327</b>	<b>0.0139</b>	<b>2.1000e-004</b>		<b>2.6400e-003</b>	<b>2.6400e-003</b>		<b>2.6400e-003</b>	<b>2.6400e-003</b>	<b>0.0000</b>	<b>37.8084</b>	<b>37.8084</b>	<b>7.2000e-004</b>	<b>6.9000e-004</b>	<b>38.0331</b>

## 5.3 Energy by Land Use - Electricity

### Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	246469	78.5302	3.2400e-003	6.7000e-004	78.8111
Parking Lot	18620	5.9327	2.4000e-004	5.0000e-005	5.9540
<b>Total</b>		<b>84.4629</b>	<b>3.4800e-003</b>	<b>7.2000e-004</b>	<b>84.7651</b>

## Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	246469	78.5302	3.2400e-003	6.7000e-004	78.8111
Parking Lot	18620	5.9327	2.4000e-004	5.0000e-005	5.9540
Total		84.4629	3.4800e-003	7.2000e-004	84.7651

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3044	7.3900e-003	0.6412	3.0000e-005		3.5500e-003	3.5500e-003		3.5500e-003	3.5500e-003	0.0000	1.0477	1.0477	1.0100e-003	0.0000	1.0731
Unmitigated	0.3044	7.3900e-003	0.6412	3.0000e-005		3.5500e-003	3.5500e-003		3.5500e-003	3.5500e-003	0.0000	1.0477	1.0477	1.0100e-003	0.0000	1.0731

## 6.2 Area by SubCategory

### Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0231					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2618					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0194	7.3900e-003	0.6412	3.0000e-005		3.5500e-003	3.5500e-003		3.5500e-003	3.5500e-003	0.0000	1.0477	1.0477	1.0100e-003	0.0000	1.0731
<b>Total</b>	<b>0.3044</b>	<b>7.3900e-003</b>	<b>0.6412</b>	<b>3.0000e-005</b>		<b>3.5500e-003</b>	<b>3.5500e-003</b>		<b>3.5500e-003</b>	<b>3.5500e-003</b>	<b>0.0000</b>	<b>1.0477</b>	<b>1.0477</b>	<b>1.0100e-003</b>	<b>0.0000</b>	<b>1.0731</b>

## Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0231					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2618					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0194	7.3900e-003	0.6412	3.0000e-005		3.5500e-003	3.5500e-003		3.5500e-003	3.5500e-003	0.0000	1.0477	1.0477	1.0100e-003	0.0000	1.0731
<b>Total</b>	<b>0.3044</b>	<b>7.3900e-003</b>	<b>0.6412</b>	<b>3.0000e-005</b>		<b>3.5500e-003</b>	<b>3.5500e-003</b>		<b>3.5500e-003</b>	<b>3.5500e-003</b>	<b>0.0000</b>	<b>1.0477</b>	<b>1.0477</b>	<b>1.0100e-003</b>	<b>0.0000</b>	<b>1.0731</b>

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	27.0557	0.1327	3.3300e-003	31.3648
Unmitigated	27.0557	0.1327	3.3300e-003	31.3648

## 7.2 Water by Land Use

### Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	4.03955 / 2.54667	27.0557	0.1327	3.3300e-003	31.3648
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>27.0557</b>	<b>0.1327</b>	<b>3.3300e-003</b>	<b>31.3648</b>

### Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			



Apartments Mid Rise	4.03955 / 2.54667	27.0557	0.1327	3.3300e-003	31.3648
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>27.0557</b>	<b>0.1327</b>	<b>3.3300e-003</b>	<b>31.3648</b>

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

#### Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.7893	0.3421	0.0000	14.3428
Unmitigated	5.7893	0.3421	0.0000	14.3428

### 8.2 Waste by Land Use

#### Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	28.52	5.7893	0.3421	0.0000	14.3428
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>5.7893</b>	<b>0.3421</b>	<b>0.0000</b>	<b>14.3428</b>

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	28.52	5.7893	0.3421	0.0000	14.3428
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		5.7893	0.3421	0.0000	14.3428

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

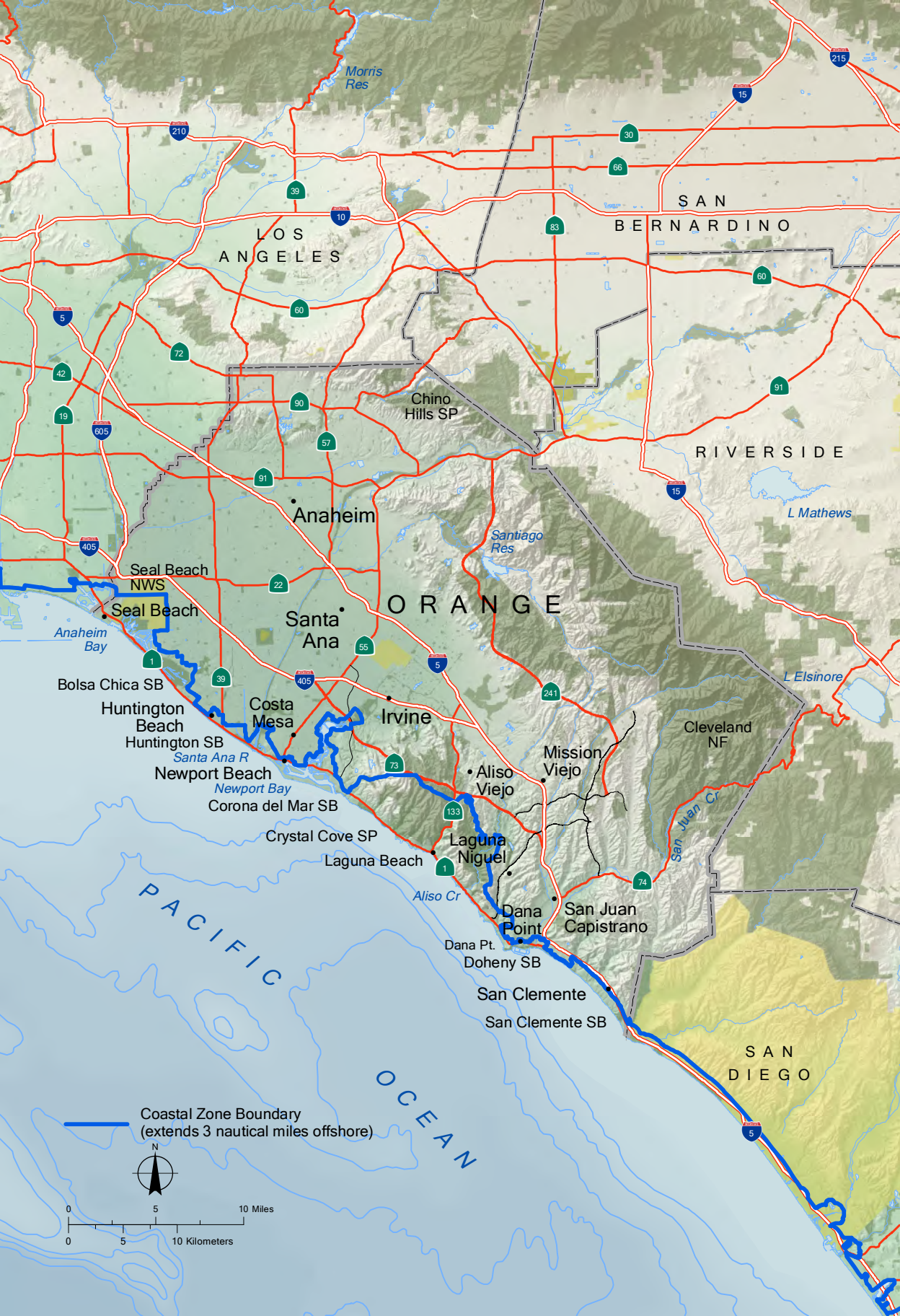
Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

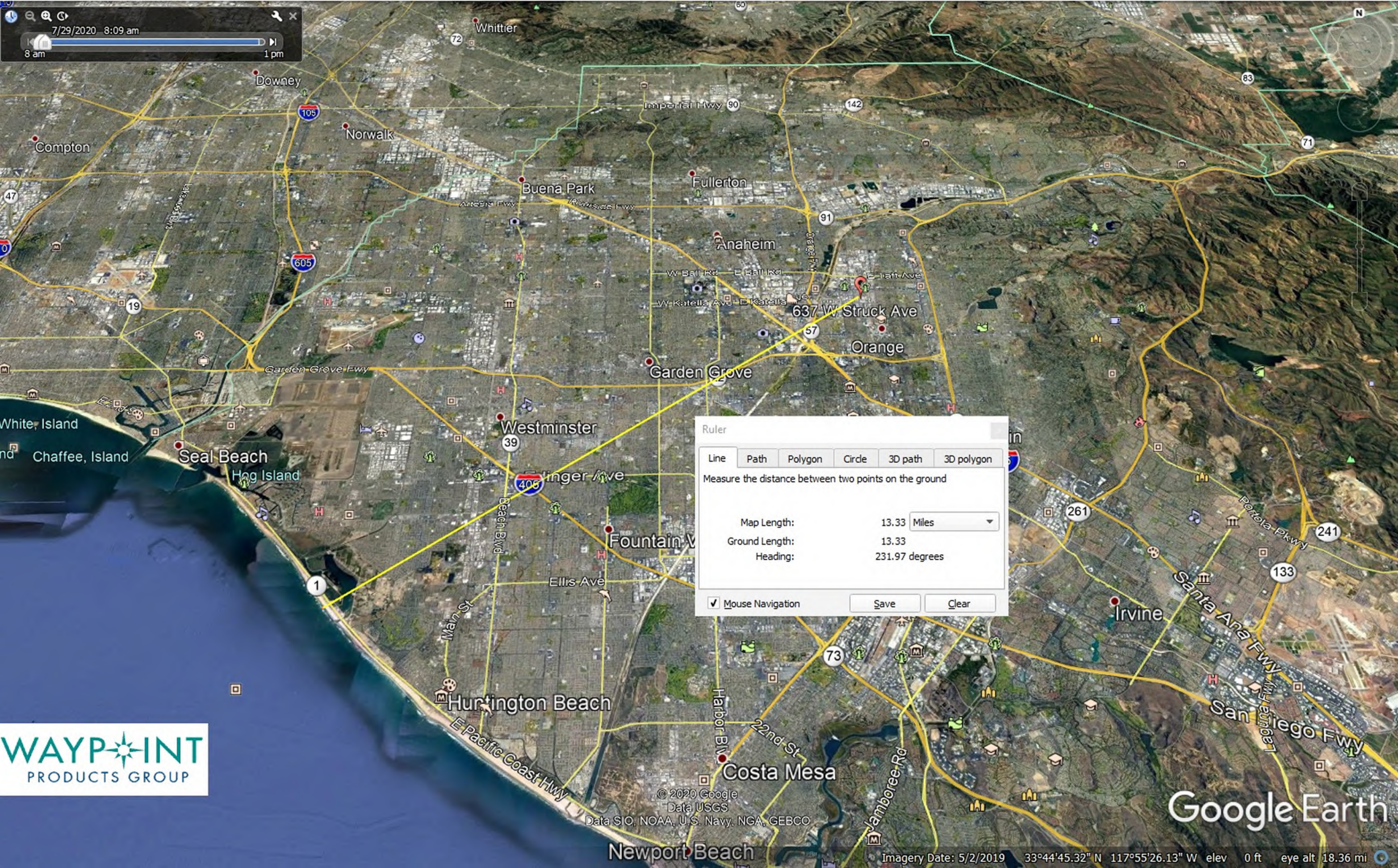
11.0 Vegetation

**Attachment 6. Orange County Coastal Zone Boundary Map**



## **Attachment 7. Project Site Distance to Coast**







## **Attachment 8. Soil Sampling Phase II ESA**

**PHASE II ENVIRONMENTAL SITE ASSESSMENT  
PROPOSED APARTMENT COMPLEX  
CITY OF ORANGE CORPORATE YARD  
2.54-ACRE PORTION OF  
EAST END OF APN 375-291-14  
637 WEST STRUCK AVENUE  
ORANGE  
ORANGE COUNTY, CALIFORNIA**

**PROJECT NO. 33616.21  
OCTOBER 9, 2020**

Prepared For:

C & C Development Co., LLC  
14211 Yorba Street, Suite 200  
Tustin, California 92780

Attention: Mr. Scott Bering



October 9, 2020

C & C Development Co., LLC  
14211 Yorba Street, Suite 200  
Tustin, California 92780

Project No. 33616.21

Attention: Mr. Scott Bering

Subject: Phase II Environmental Site Assessment  
Proposed Apartment Complex  
City of Orange Corporate Yard  
2.54-Acre Portion of East End of APN 375-291-14  
637 West Struck Avenue  
Orange, Orange County, California

Attached herewith is the Phase II Environmental Site Assessment (ESA) report prepared by this firm for the subject site located in Orange, California.

This Phase II ESA was planned and executed based upon a scope of services generally outlined in our Proposal dated February 26, 2020 (Revised June 8, 2020), and other written and verbal communication.

We appreciate the opportunity to provide this environmental assessment for the subject site. If you have any questions or comments regarding this assessment, please do not hesitate to contact this firm at your convenience.

**LOR Geotechnical Group, Inc.**

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**Table 4** - Summary of Soil Vapor Analytical Results for TPH-G and VOCs

## **APPENDICES**

**Appendix A** - Color Photographs

**Appendix B** - Soil Boring Logs

**Appendix C** - Laboratory Analytical Reports for Soil Samples

**Appendix D** - Laboratory Analytical Report for Soil Vapor Samples

## **EXECUTIVE SUMMARY**

This firm conducted a Phase II Environmental Site Assessment (ESA) for approximately 2.54 acres in the east end of the City of Orange Corporate Yard at 637 West Struck Avenue in Orange, California. The subject site is currently under municipal yard use, planned for development with an apartment complex. This Phase II ESA was conducted utilizing the California Department of Toxic Substances Control (DTSC) 2008 Interim Guidance for Sampling Agricultural Properties (Third Revision), Advisory - Active Soil Gas Investigations guidance document (California Environmental Protection Agency et al., 2015), and Standard Practice for Environmental Site Assessments: Phase II ESA Process, American Society for Testing and Materials (ASTM) E1903-19 as guidance documents.

This firm previously prepared a Phase I ESA report for the subject site. In our Phase I ESA report, we recommended that based on historical site usage, including agricultural grove and storage yard for vehicles, trailers, and equipment, and presence of shallow fill materials, soil sampling be conducted to verify there are no significant impacts for the proposed residential development. Based on the client's lender review of our Phase I ESA, soil vapor investigation was also recommended.

Seven soil borings (SB-1/SVP-1 through SB-7/SVP-7) were advanced for soil sample collection and soil vapor probe installation to a maximum exploration depth of approximately 13 feet below the ground surface (bgs). These locations were placed to generally characterize the soils and soil vapor across the subject site. Soil samples were collected at various depths within the upper 3 feet, followed generally by soil sample collect at approximately 5, 7, 10, and 12 feet bgs. Soil vapor probes were installed at SVP-1 through SVP-7 at depths of approximately 7 and 12 feet bgs, below the geotechnical recommended removal depth of 5 feet bgs for planned structural areas. Two soil borings (SB-8 and SB-9) were advanced and sampled near buckets of stored orthoboric acid, with soil sample collection at approximately 1.5, 3, and 5 feet bgs. Select soil samples were analyzed for petroleum hydrocarbon chain, volatile organic compounds (VOCs), heavy metals, boron, and/or organochlorine pesticides. Twelve of the fourteen installed soil vapor probes were sampled and analyzed for total petroleum hydrocarbons as gasoline (TPH-G) and VOCs.

Soils encountered during our assessment include clays, clayey sands, and sands with clays. No obvious signs of impacts, including soil staining or chemical odor, were noted during soil boring advancement and sampling.

Based on the reported concentrations of petroleum hydrocarbons, heavy metals, OCPs, and boron, which are less than DTSC screening levels for residential soils or within expected background levels, no adverse environmental impacts to onsite soils are present from past subject site use. Therefore with respect to the environmental condition of onsite soils, they appear to be suitable for the planned multi-family residential development. No further assessment of onsite soils is recommended.

Some of the reported soil vapor concentrations of TPH-G and VOCs, including benzene and ethylbenzene, exceed the DTSC screening levels for residential indoor air with attenuation factor of 0.03 applied, suggesting remediation or mitigation may be warranted for the planned multi-family development. A Health Risk Assessment performed by a qualified professional may find that the reported soil vapor concentrations are, in fact, suitable for residential development without remediation or mitigation. At the present time, we recommend mitigation of the soil vapor concentrations through the recommended geotechnical removal and recompaction of the upper approximate 5 feet of onsite soils (i.e., engineered fill), which are relatively fine-grained and will provide a somewhat effective barrier at reducing soil vapor intrusion into the planned onsite buildings, and the placement of a vapor barrier, such as a membrane with sealing material like Liquid Boot®, beneath all planned on-grade buildings.

## **INTRODUCTION**

During September to October 2020, a Phase II ESA was conducted by this firm for a proposed apartment complex in the east end of the City of Orange Corporate Yard, located at 637 West Struck Avenue in Orange, Orange County, California. The subject site is currently under municipal yard use, planned for development with an apartment complex. This firm previously prepared a Phase I ESA report for the subject site (LOR Geotechnical Group, Inc., 2020a). In our Phase I ESA report, we recommended that based on historical site usage, including agricultural grove and storage yard for vehicles, trailers, and equipment, and presence of shallow fill materials, soil sampling be conducted to verify there are no significant impacts for the proposed residential development. Based on the client's lender review of our Phase I ESA, soil vapor investigation was also recommended.

The Phase II ESA documented within this report was conducted in general accordance with a few guidelines or standards, including the California Department of Toxic Substances Control (DTSC) 2008 Interim Guidance for Sampling Agricultural Properties (Third Revision), Advisory - Active Soil Gas Investigations guidance document (California Environmental Protection Agency et al., 2015), and Standard Practice for Environmental Site Assessments: Phase II ESA Process, ASTM E1903-19. The purpose of this Phase II ESA was to assess hazardous substances that may be associated with the potential impacts to onsite soil and soil vapor from historical usage, and to determine if further Phase II ESA, remediation, and/or mitigation is warranted prior to the planned residential development of the subject site. The scope of this assessment has been performed with the concurrence of the client.

The approximate location of the site within its regional setting is presented on an Index Map (Figure 1).

The findings of our Phase II ESA, as well as our conclusions and recommendations, are presented within the following sections of this report.

## **SITE DESCRIPTION**

The subject site is vacant land, comprising approximately 2.54 acres of an irregular-shaped portion of a larger 17.23-acre parcel of land which comprises the City of Orange Corporate Yard and Police Department building, located at the northeast corner of the intersection at North Batavia Street and West Struck Avenue. The subject site is situated in the far east end of the 17.23-acre parcel, and is largely absent of vegetation, with dense bushes and

trees along the north boundary and landscaped pine trees, ornamental plants, and grass near and/or within the south side of the subject site along the north side of West Struck Avenue. The ground surface of most of the subject site is dirt covered in gravel and/or asphalt grindings, with some bare dirt present. Some areas of asphalt and concrete pavement are present. Approximate 6-foot high metal chain-link fencing is present along and/or near the north, east, and south boundaries. Some internal metal chain-link fencing is present in the north end and northwest portion near the west subject site boundary.

Various areas of storage are present at the subject site, including roll-off bins, green waste, concrete and asphalt wastes, and various materials, equipment, trailers, and vehicles, are present at the subject site, most of which are in the east portion.

The only observed containers of hazardous materials or wastes include containers with paint drying near the east subject site boundary, near and just north of the area for placement of broken asphalt and concrete (wastes). Dried paint is present on the ground near these containers. Stacks of over two hundred plastic 5-gallon buckets containing insecticide (Zone Defense®, orthoboric acid) are located where the south subject site boundary turns from east-west along the north side to north-south along the west side of the offsite homeless shelter.

#### Adjoining Properties

The subject site is bordered to the south by West Struck Avenue, a largely improved, asphalt-paved, 2-lane road with a cul-de-sac. Across West Struck Avenue to the south is Nursery Supplies, Inc., a nursery plant related supplier. At the end of the cul-de-sac for West Struck Avenue, at the northeast side, is Mary's Kitchen, a homeless shelter, which is adjacent to the south, southeast, and east of the subject site. Adjacent to the east of the subject site, north of Mary's Kitchen, is a railway, which according to the Assessor's Parcel Map, belongs to Atchison Topeka and Santa Fe Railroad, currently BNSF Railway Company. The railway includes a main rail line that in close proximity to the northeast corner of the subject site splits into two rail lines. Beyond the railway to the east are two apartment complexes (Lemon Grove Apartments and Citrus Grove Apartments), a strip, multi-unit commercial building, and a strip of property associated with light manufacturing buildings south of Citrus Grove Apartments. Beyond the railway to the northeast, beyond a strip of property associated with the Lemon Grove Apartments, is a commercial, multi-unit, office building. Adjacent to the north and northwest of the subject site is commercial property with three nearby buildings that include a motor parts warehouse, martial arts, pharmaceuticals, and windows store/showroom. Adjacent to the west of the

subject site are additional areas of the City Corporate Yard. These areas include storage buildings and units associated with various City departments, including the Police Department, Traffic Engineering and Operations Division, and Street Maintenance and Operations Division. The City Public Works and Fire Department also utilize areas near and west of the subject site. Storage in these areas includes traffic control equipment, materials (soil, base, gravel), vehicles, bicycles, and an enclosed trailer. Containers with hazardous materials and wastes were observed, including paint, hazardous materials related to asphalt such as asphalt oil, and a fenced storage area utilized by the City Fire Department as a collection point for containers of various hazardous materials and wastes.

### **PHYSICAL SETTING**

The physical setting of the subject site was researched during our past Phase I ESA, including topography, geology, and hydrogeology.

#### **Topography**

The subject site is situated at ground surface elevations ranging from approximately 179 to 186 feet above mean sea level (amsl). The topography of the subject site is generally planar with an overall gentle fall in a westerly direction. There appears to be an area of noticeably higher elevation in/near the northeast corner of the subject site. In the area used to placed broken asphalt and concrete in the southeast portion and near the east boundary of the subject site, there is up to an approximate 2-foot drop in the ground surface topography.

#### **Regional and Local Geologic Setting**

The subject site is located within northeastern Orange County between the Santa Ana River to the west and the Peralta Hills to the east. These small hills form a series of low hills that extend as a northwest-trending flank of the larger Santa Ana Mountains to the east and southeast. The Santa Ana Mountains are in turn one of the several mountain ranges that form the interior portion of Southern California known as the Peninsular Ranges geomorphic province. This province consists of a series of northwest-trending mountains that extend from the Los Angeles Basin, south to the Mexican border and beyond. The Santa Ana Mountains themselves form the eastern boundary of Orange County, and contain some of the oldest rocks within the county, the Triassic to Jurassic aged metasedimentary rocks of the Bedford Canyon formation that formed around 225 million years ago. Underlying the Bedford Canyon formation are units of relatively



younger igneous rocks of Cretaceous age that form the core of the mountains from intrusion of magma into this area around 65 million years ago. Especially along the western flanks of the Santa Ana mountains, these older metamorphic and igneous rocks are overlain by younger rocks of sedimentary and volcanic origin that documents the fluctuating history of this region from shallow continental sea to near shore continental environments, with periodic volcanic eruptions.

Erosion of the Santa Ana Mountains to the east and southeast, as well as the hills to the east, by the Santa Ana River and its tributaries, such as the Santiago Creek to the east-southeast, has deposited a relatively thick sequence of relatively unconsolidated alluvium of various ages and levels in a series of terraces along this broad valley. In their regional geologic map of the area, the United States Geological Survey (USGS) indicated that the subject site is situated upon older alluvial materials (Morton, 2004). This unit was described as composed of indurated, reddish brown, sandy alluvial fan deposits. This deposit is considered to have been deposited in the late to middle Pleistocene age, or on the order of about 11,000 years or slightly older. This older unit has been slightly incised, and replaced with similar, unconsolidated, materials along the active creek beds.

The region, like much of southern California, has numerous faults. These are all associated with the San Andreas fault zone, located approximately 39.5 miles to the northeast, that results from the area's location and history as a major plate boundary with various types of relative motion. Many of these faults have been inactive for millions of years and are noted only by abrupt changes of rock types. Other faults show evidence that they have been active in geologically recent times, since the Pleistocene Epoch within the last 11,000 years, but not within the recorded history of Orange County, while other faults have documented historical activity.

The San Andreas fault, noted above, is the largest known active fault in the region in terms of anticipated events. The closest known fault is the Peralta Hills-El Modeno fault location, approximately 2.5 miles to the northeast. The Peralta fault may tie into the El Modeno fault, which at closest approach is located approximately 1.9 miles to the north-northeast. While little data is available on the activity and potential of these faults, these reportedly break late Pleistocene (11,000 to 700,000 years old) materials, and may fault Holocene (from 0 to 11,000 years in age) alluvial materials which would indicate these faults are active.

The closest known active fault in relation to the site which data is readily available, is the Whittier-Elsinore fault, which lies approximately 8 miles to the north-northeast. The Whittier fault zone extends along the southwestern base of the Puente Hills. The Whittier fault joins the Chino fault near Prado Dam, and they merge into the Elsinore fault zone which trends along the eastern base of the Santa Ana Mountains.

Another well known active fault zone is the Newport-Inglewood fault zone, located approximately 11 miles to the southwest of the site, extends northwest from offshore Newport Beach to Inglewood (distance of 40 miles).

#### Site Geologic Conditions

The subject site is situated upon late to middle Pleistocene alluvial fan deposits. Most of our past Preliminary Geotechnical Investigation (PGI) exploratory soil borings encountered near surface fill materials up to approximately 3 feet below the ground surface (LOR Geotechnical Group, Inc., 2020b). These fill materials were generally coarse-grained soils with gravel and asphalt debris and/or grindings. Underlying these fill materials are the Pleistocene alluvial fan deposits, noted within all of our exploratory soil borings, and are typically composed of lean clay with sand within the upper portion, and interbedded clayey sands and lean clays with sand, with significant gravels in the clayey sands at depths below approximately 5 to 7 feet bgs. The alluvial units were generally noted to be reddish-brown in color and damp to moist. Drilling in the first exploratory soil boring was intended to reach approximately 50 feet bgs, but refusal at approximately 41 feet bgs was encountered on coarse-grained materials, likely including gravels and/or cobbles.

Our recent soil borings, advanced as part of the current Phase II ESA, encountered similar materials as described above, except for more sands with clays encountered at depths of approximately 6 feet bgs and below, to a maximum depth of approximately 13 feet bgs.

#### Hydrogeology

The subject site is located within the Coastal Plain of Orange County Groundwater Basin (Orange County Basin) which underlies a coastal alluvial plain in the northwestern portion of Orange County. The basin is bounded by consolidated rocks exposed on the north in the Puente and Chino Hills, on the east in the Santa Ana Mountains, and on the south in the San Joaquin Hills. The basin is bounded by the Pacific Ocean on the southwest and by a low topographic divide approximated by the Orange County - Los Angeles County line on the northwest. The basin underlies the lower Santa Ana River watershed.

The Orange County Basin is dominated by a deep structural depression containing a thick accumulation of fresh water-bearing interbedded marine and continental sand, silt, and clay deposits. The proportion of fine material generally increases toward the coast, dividing the basin into forebay and pressure areas. Consequently, most surface waters recharge through the coarser, more interconnected and permeable forebay deposits. Strata in this basin are faulted and folded, and may show rapid changes in grain size. The Newport-Inglewood fault zone parallels the coastline, and generally forms a barrier to groundwater flow. Erosional channels filled with permeable alluvium break this barrier at the Alamitos and Talbert Gaps, providing an opportunity for saline water to flow inland.

Upper, middle, and lower aquifer systems are recognized in the basin.

**Upper Aquifer System:** This system includes Holocene alluvium, older alluvium, stream terraces, and the upper Pleistocene deposits represented by the La Habra Formation. It has an average thickness of about 800 feet and consists mostly of sand, gravel, and conglomerate with some silt and clay beds. Generally, the upper aquifer system contains a lower percentage of water-bearing strata in the northwest and coastal portions of the area where clays and clayey silts dominate. Accordingly, recharge from the surface to the groundwater basin may be minor in these areas. Recharge to the upper aquifer system occurs primarily in the northeastern portions of the basin. The upper aquifer provides most of the irrigation water for the basin.

**Middle Aquifer System:** This system includes the lower Pleistocene Coyote Hills and San Pedro Formations, which have an average thickness of 1,600 feet, and are composed of sand, gravel, and minor amounts of clay. The primary recharge of the middle aquifer system is derived from the Santa Ana River channel in the northeast near the town of Olive. The middle aquifer system provides 90 to 95 percent of the groundwater for the basin.

**Lower Aquifer System:** This system includes the Upper Fernando Group of upper Pliocene age, and is composed of sand and conglomerate 350 to 500 feet thick. Electric logs of this aquifer indicate that it would probably yield large quantities of fresh water to wells, but it is not utilized for groundwater production at present.

Impairments within the Orange County Basin include sea water intrusion near the coast, colored water from natural organic materials in the lower aquifer system, and increasing salinity, high nitrates, and MTBE (California Department of Water Resources, 2004).

Groundwater was not encountered within any of our recent assessment soil borings nor past PGI soil borings at the subject site to a maximum exploration depth of approximately 41 feet bgs. We previously conducted a search for nearby water well data available from the State of California Department of Water Resources online Water Data Library web site. This database indicates that the nearest water well is State Well Number 04S09W19G001S which lies approximately 0.4 mile to the north-northwest. The ground surface at this well lies at an elevation of approximately 179 feet amsl. Recorded groundwater measurements were available from October 1991 to October 2010. The records indicate that groundwater in this well has fluctuated in depth between approximately 170 feet bgs in November of 1992 to a high of approximately 91 feet bgs in July of 2006. This results in an approximate elevation range of 9 to 88 feet amsl. The latest groundwater measurement in October of 2010 was approximately 128 feet bgs.

The subject site is situated at an average elevation of roughly 183 feet amsl. Therefore, groundwater is anticipated to lie at a depth greater than approximately 95 feet bgs at the subject site. The local and regional groundwater flow is anticipated to be in a westerly direction, coincident with the fall in regional ground surface topography and towards the Santa Ana River approximately 0.9 mile west of the subject site.

#### **PAST ENVIRONMENTAL SITE ASSESSMENT**

A Phase I ESA was conducted by this firm in January to February 2019 for the subject site (LOR Geotechnical Group, Inc., 2020a). Based on the historical research and site visit conducted, the subject site was historically agricultural grove and/or vacant land, with municipal storage (materials, vehicles, trailers, equipment) within the last four decades.

During our site visit, no containers with hazardous materials or hazardous wastes were observed onsite, except for two 5-gallon buckets (open top) with paint drying in them and stacks of over two hundred plastic 5-gallon buckets containing insecticide (Zone Defense®, orthoboric acid). These containers were recommended to be lawfully transported offsite for reuse, recycling, or disposal prior to site development.

Minor areas of apparent hydrocarbon-stained soils were observed at various locations across the subject site, which were considered to be de minimis.

Records available from various agencies, including the California Regional Water Quality Control Board, Santa Ana Region, California DTSC, South Coast Air Quality Management District, County of Orange Health Care Agency, Environmental Health (COHCA-EH), and City of Orange Building Division and Fire Department, were reviewed for 637 West Struck Avenue, associated with the City Corporate Yard in which the subject site is located. Many of these records pertain to an offsite fueling system located approximately 600 feet west of the subject site. None of these records were indicated to be associated directly with the subject site.

There were numerous sites listed in environmental regulatory databases within 1 mile of the subject site, including the City Corporate Yard in which the subject site is located. None of these listings were indicated to be directly associated with the subject site. Based on the results of our Vapor Encroachment Screen (VES), Tier 1 and 2 (non-invasive) screening, a vapor encroachment condition at the subject site was ruled out. Based on our review of environmental regulatory databases and VES, it was concluded no environmentally impaired properties, listed within these databases, have current or former releases of hazardous substances and/or petroleum products that have migrated to and/or impacted the subject site.

Our Phase I ESA revealed no evidence of recognized environmental conditions (RECs), historical recognized environmental conditions (HRECs), and/or controlled recognized environmental conditions (CRECs) indicative of releases or threatened releases of hazardous substances on, at, in, or to the subject site. However, it was concluded there were two environmental concerns that represented potential impacts to the subject site that may have had an adverse environmental impact to the proposed multi-family residential development. Based on past agricultural grove usage, soils impacted with organochlorine pesticides (OCPs) and arsenic may have been present. Soil sampling in general accordance with the DTSC 2008 Interim Guidance for Sampling Agricultural Properties (Third Revision) was recommended to be conducted to verify the environmental condition of onsite soils with respect to residential development. The second environmental concern was due to the long-term use of the subject site as a storage yard for vehicles, trailers, and equipment. Also, our past PGI encountered shallow fill materials at several locations, which may have been from imported materials. As a result, it was concluded shallow onsite soils may have impacts from petroleum hydrocarbons, volatile organic compounds, and heavy metals. It was recommended that soil sampling be conducted to verify there are no significant impacts from these compounds for the proposed residential development.

Our Phase I ESA was reviewed by the client's lender, who determined that assessment of soil vapor and the location with buckets of orthoboric acid were warranted as well.

## **PHASE II ENVIRONMENTAL SITE ASSESSMENT**

Based on the past historical onsite uses, including agricultural grove and City Corporate Yard, a Phase II ESA was performed. Seven (7) soil borings (SB-1/SVP-1 through SB-7/SVP-7) were placed across the subject site to collect soil samples and install soil vapor probes for soil vapor sample collection to provide a general characterization of the environmental condition with respect to past agricultural grove and municipal yard use. Two soil borings (SB-8 and SB-9) were placed within 10 feet of the location in the southeast portion of the subject site with stacks of buckets with orthoboric acid to assess potential soil impacts. The approximate locations of the soil borings and/or soil vapor probes are shown on a recent color aerial image, Figure 2.

Color photographs taken during soil boring advancement and soil sampling, soil vapor probe installation, and soil gas sampling and analysis activities, are provided in Appendix A.

### **Soil Boring Advancement and Soil Vapor Probe Installation**

Over three working days prior to field sampling activities, a visit was made to mark the subject site for Underground Service Alert of Southern California (USA), who was notified of planned boring activity to identify public subsurface utilities. In addition, the client and City of Orange were also notified in advance of planned onsite activities.

On September 25, 2020, Interphase Environmental, Inc. (Interphase) was contracted to advance seven soil borings to maximum depths ranging from approximately 5 to 13 feet bgs. Interphase utilized a truck-mounted, direct-push (Geoprobe®) rig to advance the borings, collect soil samples, and/or install soil vapor probes at SB-1/SVP-1 through SB-7/SVP-7. In general, the borings were advanced initially to approximately 5 feet bgs with a Macro Core system to get better soil sample recovery, followed by a dual tube system to the maximum exploration depth of 13 feet bgs. Both of these push rod systems have an outer diameter of 2.25 inches, with a larger sample shoe opening for the Macro Core system. In soil borings SB-1 through SB-7, soil samples were generally collected at various depths from ground surface to approximately 3 feet bgs, depending on the depth of fill materials identified, following which soil samples were typically collected at 5, 7, 10, and 12 feet bgs. In soil borings SB-8 and SB-9, which were advanced with a hand auger

due to concerns of an underground water line in the area, soil samples were collected at 1.5, 3, and 5 feet bgs. Soil vapor probes were installed at SVP-1 through SVP-7 at depths of approximately 7 and 12 feet bgs, below the geotechnical recommended removal depth of 5 feet bgs for structural areas. The soil vapor probes were constructed of 1/4-inch Nylaflow® tubing and approximate 6-inch plastic filter inserts. The screens for the soil vapor probes were installed within one foot of No. 3 Monterey sand, over which bentonite granules were placed and hydrated. The soil vapor probe tubing at the surface was cut in lengths that indicated which probe was the deepest, meaning the longer tubing indicated the deeper (12-foot) probe and shorter tubing the shallow (7-foot) probe. The tubing at the surface was also labeled on tape with the probe depths. After installation, rubber end caps were placed at the ends of the probe tubing.

The soils encountered during boring advancement were generally clays, clayey sands, and sands with clay with varying amounts of gravels. No evidence of soil contamination, such as odor or staining, was noted. Soils in each boring were logged according to the Unified Soil Classification System. The soil boring logs are provided in Appendix B.

#### Soil Sampling and Analytical Procedures

Soil samples collected at SB-1 through SB-7 with the direct-push rig were obtained from a 4- to 5-foot long clear plastic-lined drive sampler, which were approximately 1 7/16 to 1 3/4 inches in diameter. An approximate 6-inch sample sleeve was cut from the 4- to 5-foot sample liners, and then sealed with Teflon® sheets and rubber end caps. Soil samples collected at SB-8 and SB-9 with a hand auger were obtained by transferring soil directly from the auger barrel directly into approximate 6-inch plastic sleeves, taped and capped as described above. The hand auger was decontaminated prior to boring advancement and sampling, and in between soil borings SB-8 and SB-9 in a wash of Alconox®, followed by rinses in clean tap water. The soil sample sleeves were labeled with the location, sample depth, and date and time of sampling.

All soil samples were placed on ice for transport to the laboratory for analysis. The samples were transported under Chain-of-Custody (CoC) to A & R Laboratories, Inc. (A & R), a California-certified laboratory in Ontario, California. Upon delivery of the samples to the laboratory for analysis, the CoC form was signed by authorized personnel, and a copy was retained by LOR personnel.

The quality assurance/quality control (QA/QC) program in effect during the performance of all field activities included the following items:

- Complete documentation of all field activities.
- Use of appropriate CoC forms.
- Use of clean sampling equipment.
- Sampling according to generally accepted protocols.

Soil samples at various depths, including at approximately 0.5, 1, 1.5, and/or 2 feet bgs, collected from soil borings SB-1 through SB-7, were analyzed for petroleum hydrocarbon chain, including total petroleum hydrocarbons as gasoline (TPH-G), C4-C12, using the California Leaking Underground Fuel Tank (LUFT) Method, and total petroleum hydrocarbons as diesel (TPH-D), C13-C22, and oil (TPH-O), C23-C40, using United States Environmental Protection Agency (USEPA) Method 8015M. These samples were also analyzed for VOCs, using USEPA Method 8260B, and California Title 22 heavy metals (total), using USEPA Methods 6020 and 7471A. Based on the reported concentration of chromium in the 1-foot soil sample from boring SB-7, additional analysis of this sample included chromium (VI), using USEPA Method 7196A, California Soluble Threshold Limit Concentration (STLC) chromium, using USEPA Method 6020, and federal Toxicity Characteristic Leaching Procedure (TCLP) chromium, using USEPA Method 6020. The 2.5- and 5-foot soil samples from boring SB-7 were also analyzed for California Title 22 heavy metals (total), using USEPA Methods 6020 and 7471A.

Soil samples at various depths, including at approximately 0.5, 1, 1.5, 2.5, and/or 3.5 feet bgs, collected from soil borings SB-1 through SB-7, were analyzed for OCPs, using USEPA Method 8081A, and arsenic (total) using USEPA Method 6020.

Soil samples collected from soil borings SB-8 and SB-9 at depths of approximately 1.5 and 3 feet bgs were analyzed for boron, using USEPA Method 6010B.

#### Soil Vapor Sampling and Analytical Procedures

Soil vapor samples were collected from twelve of the fourteen (14) soil vapor probes, plus a duplicate sample, a minimum of 2 hours following probe installation. A & R Laboratories, Inc. mobile laboratory analyst collected the soil vapor samples, and analyzed them in general accordance with the Advisory - Active Soil Gas Investigations (California Environmental Protection Agency et al., 2015). At each sampling location, an electric vacuum pump, set to draw 0.2 liters per minute of soil vapor, was attached to the probe,



and purged 3 volumes prior to sample collection. Soil vapor samples were obtained in a glass bulb covered in aluminum foil. All thirteen (13) of the soil vapor samples collected were analyzed for TPH-G and VOCs using USEPA Method 8260B.

### Laboratory Analytical Results

None of the soil samples analyzed for petroleum carbon chain have reported concentrations at or above the laboratory reporting limit, except for the 0.5-foot samples from SB-3 and SB-4 and 2-foot sample from SB-4, with TPH-D reported up to 37 milligrams per kilogram (mg/kg) and TPH-O reported up to 51 mg/kg. These reported concentrations are less than the DTSC screening levels for residential soils (DTSC, 2020).

None of the soil samples analyzed for VOCs have reported concentrations at or above the laboratory reporting limit.

The soil samples analyzed for one or more California Title 22 heavy metals (total) have reported concentrations of arsenic up to 8.71 mg/kg, barium up to 130 mg/kg, cobalt up to 8.29 mg/kg, chromium up to 282 mg/kg, copper up to 29.8 mg/kg, lead up to 34.2 mg/kg, molybdenum up to 4.63 mg/kg, nickel up to 14.3 mg/kg, vanadium up to 340 mg/kg, and/or zinc up to 78.5 mg/kg. Based on the elevated level of total chromium in the 1-foot soil sample from boring SB-7, for which there is no DTSC screening level to compare it to, chromium (VI) analysis was conducted, and is non-detect at the laboratory reporting limit of 0.2 mg/kg, less than the DTSC screening level for residential soil at 0.3 mg/kg. Hazardous waste classification was evaluated, utilizing California STLC and federal TCLP analytical results, which were reported at 1.28 milligrams per liter (mg/L) and non-detect at the laboratory reporting limit of 0.200 mg/L. These results indicate the soil is non-hazardous with respect to waste disposal. The reported concentrations of total heavy metals are generally less than the DTSC screening levels for residential soils, except for arsenic, which exceeds the DTSC screening level for commercial/industrial soils. As arsenic concentrations in soil often exceed regulatory screening levels, background levels are used to evaluate potential soil impacts. The range of reported arsenic concentrations, 1.70 to 8.71 mg/kg, fall within expected background levels (Bradford et al., 1996).

Two of the soil samples analyzed for OCPs, including the 1-foot sample from SB-2 and the 0.5-foot sample from SB-6, have reported concentrations of chlordane at 0.011 mg/kg and 4,4'-dichlorodiphenyldichloroethene (DDE) up to 0.0028 mg/kg. These reported concentrations are less than the DTSC screening levels for residential soils.

The four soil samples from soil borings SB-8 and SB-9 have reported concentrations of boron ranging from 39.2 to 51.2 mg/kg. These reported concentrations are less than the DTSC screening levels for residential soils and within expected background levels for boron.

The analytical laboratory reports for the soil samples are provided in Appendix C. Soil sample summary analytical results for TPH-G, TPH-D, TPH-O, and VOCs, California Title 22 heavy metals, and boron and OCPs are presented in Tables 1, 2, and 3, respectively.

All thirteen (13) soil vapor samples collected and analyzed, including one duplicate sample, have reported concentrations of TPH-G and/or VOCs at or above the laboratory method detection limit. Concentrations of TPH-G were reported up to 5.2 micrograms per liter ( $\mu\text{g/L}$ ). Concentrations of benzene were reported up to 0.11  $\mu\text{g/L}$ , toluene up to 0.10  $\mu\text{g/L}$ , ethylbenzene up to 0.040  $\mu\text{g/L}$ , total xylenes up to 0.59  $\mu\text{g/L}$ , 1,2,4-trimethylbenzene up to 0.12  $\mu\text{g/L}$ , 1,3,5-trimethylbenzene up to 0.060  $\mu\text{g/L}$ , and dichlorodifluoromethane (Freon-12) up to 3.3  $\mu\text{g/L}$ . Since the DTSC has no screening levels for soil vapor, DTSC screening levels for indoor air were utilized, applying an attenuation factor of 0.03, as recommended by USEPA and DTSC. Applying this methodology, concentrations of TPH-G and ethylbenzene exceed DTSC screening levels for residential scenarios, and concentrations of benzene exceed DTSC screening levels for residential and/or commercial/industrial scenarios.

The analytical laboratory report for the soil vapor samples is provided in Appendix D. A summary of the soil vapor analytical results for TPH-G and VOCs is presented in Table 4.

## **CONCLUSIONS AND RECOMMENDATIONS**

We performed a Phase II ESA to assess the potential impacts to onsite subsurface soil and soil vapor associated with past onsite uses, including agricultural grove and municipal yard. Soils encountered during our assessment include clays, clayey sands, and sands with clays, relatively consistent with the soils identified during our past PGI. No obvious signs of impacts, including soil staining or chemical odor, were noted during soil boring advancement and sampling.

Based on the reported concentrations of petroleum hydrocarbons, heavy metals, OCPs, and boron, which are less than DTSC screening levels for residential soils or within

expected background levels, no adverse environmental impacts to onsite soils are present from past subject site use. Therefore with respect to the environmental condition of onsite soils, they appear to be suitable for the planned multi-family residential development. No further assessment of onsite soils is recommended.

Some of the reported soil vapor concentrations of TPH-G and VOCs, including benzene and ethylbenzene, exceed the DTSC screening levels for residential indoor air with attenuation factor of 0.03 applied, suggesting remediation or mitigation may be warranted for the planned multi-family development. A Health Risk Assessment performed by a qualified professional may find that the reported soil vapor concentrations are, in fact, suitable for residential development without remediation or mitigation. At the present time, we recommend mitigation of the soil vapor concentrations through the recommended geotechnical removal and recompaction of the upper approximate 5 feet of onsite soils (i.e., engineered fill), which are relatively fine-grained and will provide a somewhat effective barrier at reducing soil vapor intrusion into the planned onsite buildings, and the placement of a vapor barrier, such as a membrane with sealing material like Liquid Boot®, beneath all planned on-grade buildings.

### **STATEMENT OF QUALIFICATIONS**

Mr. John Leuer is the President of LOR Geotechnical Group, Inc. (LOR), founded in 1988. As a cofounder and President of the company, Mr. Leuer has managed LOR through hundreds of Phase I Environmental Site Assessments, as well as numerous Phase II Environmental Site Assessments and remediation projects, primarily remedial excavation. Mr. Leuer has over 36 years experience in the geotechnical and environmental fields. Mr. Leuer has substantial experience coordinating projects for many city, county and state agencies, as well as in the public sector, gaining a reputation for being responsive to clients needs while providing strong technical expertise. LOR Geotechnical Group, Inc. is one of three firms that previously provided report review for underground storage tank closure for the County of San Bernardino, Fire Department Hazardous Materials Division.

Mr. Leuer holds a B.S. in Civil Engineering from Cal State University at Northridge. He is a registered Geotechnical and Civil Engineer in the State of California. Mr. Leuer is a member of the American Society of Civil Engineers.

Mr. Mathew L. Hunt has over 21 years experience in the environmental field. Mr. Hunt works under LOR Geotechnical Group's environmental operations and has conducted over 350 Phase I Environmental Site Assessments for the private and public sectors. The properties have ranged from agricultural to residential to commercial/industrial. In addition to his experience with environmental assessments for property transfers, he has worked on projects that require mitigation prior to development. Mr. Hunt is well versed in hazardous waste sampling and characterization methodologies in soil and groundwater regimes for groundwater monitoring, site assessment, and site remediation. Projects have ranged from leaking USTs at gasoline stations to commercial and government (including Superfund/CERCLA sites) projects involving metals, perchlorate, and solvents.

Mr. Hunt has a B.S. in soil science from California Polytechnic State University, San Luis Obispo and a M.S. in soil and water science from the University of California, Riverside.

### **LIMITATIONS**

This report was prepared solely for the use and benefit of LOR's client, C & C Development Co., LLC, and their designates and assigns. They may release this information to third parties, who may use and rely upon this information at their discretion. However, any use of or reliance upon this information by a party other than C & C Development Co., LLC and their designates and assigns, shall be solely at the risk of such third party and without legal recourse against LOR Geotechnical Group, Inc.; its subsidiaries and affiliates; or their respective employees, officers, or directors; regardless of whether the action in which recovery of damages is sought is based upon contract, statute, or otherwise.

The content and conclusions provided by LOR in this assessment are based on information collected during our investigation, which may include, but is not limited to, visual site inspections, interviews with the site owner, regulatory agencies and other pertinent individuals, a review of available public documents, and our professional judgement based on said information at the time of preparation of this document. Any surface or subsurface samples results and observations presented herein are considered to be representative of the area of investigation; however, soil conditions may vary between sample locations and may not necessarily apply to the general site as a whole. If future subsurface or other conditions are revealed which may vary from these findings, the newly-revealed conditions must be evaluated, and may invalidate the conclusions of this report.

This report has been prepared in accordance with generally accepted practices using standards of care and diligence normally practiced by recognized consulting firms performing services of a similar nature. LOR Geotechnical Group, Inc. is not responsible for the accuracy of information provided by other individuals or entities which is used in this report. This report presents our professional judgement based upon data and findings identified in this report, and the interpretation of such data based upon our experience and background, and no warranty, either expressed or implied, is made. The conclusions presented are based upon the current regulatory climate and may require revision if future regulatory changes occur. Peer review of this document may be warranted to verify its conclusions and recommendations.

### **TIME LIMITATIONS**

The findings of this report are valid as of this date. Changes in the condition of a property can, however, occur with the passage of time, whether they be due to natural processes or the work of man on this or adjacent properties. In addition, changes in the Standards-of-Practice and/or Governmental Codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by changes beyond our control. Therefore, this report should not be relied upon after a significant amount of time without a review by LOR Geotechnical Group, Inc., verifying the suitability of the conclusions and recommendations.

C & C Development Co., LLC  
October 9, 2020

Project No. 33616.21

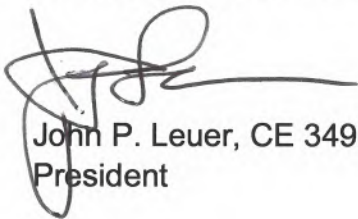
**CLOSURE**

We appreciate this opportunity to be of service and trust this report provides the information desired at this time. Should questions arise, please do not hesitate to contact this office.

Respectfully submitted,  
**LOR Geotechnical Group, Inc.**



Mathew L. Hunt  
Environmental Scientist



John P. Leuer, CE 34996  
President

MLH:JPL\mlh

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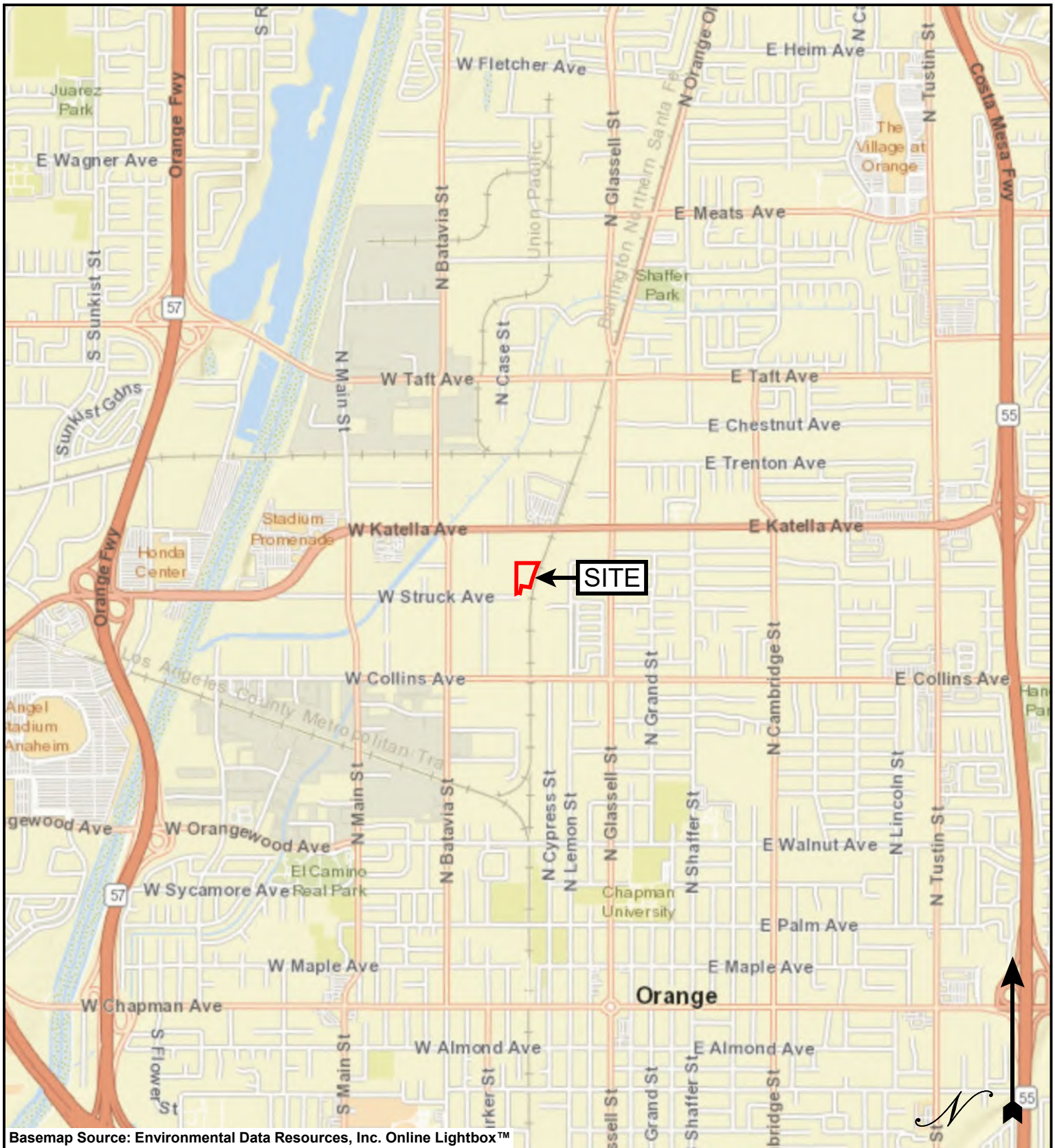
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## **FIGURES**



## INDEX MAP

PROJECT:	PROPOSED APARTMENT COMPLEX, CITY CORPORATE YARD, ORANGE, CA	PROJECT NO.:	33616.21
CLIENT:	C & C DEVELOPMENT CO., LLC	FIGURE:	1
<b>LOR</b> Geotechnical Group, Inc.		DATE:	OCTOBER 2020
		SCALE:	1" ~ 2,100'





## SOIL BORING AND SOIL VAPOR PROBE LOCATIONS ON RECENT COLOR AERIAL IMAGE

PROJECT:	PROPOSED APARTMENT COMPLEX, CITY CORPORATE YARD, ORANGE, CA	PROJECT NO.:	33616.21
CLIENT:	C & C DEVELOPMENT CO., LLC	FIGURE:	2
<b>LOR</b> Geotechnical Group, Inc.		DATE:	OCTOBER 2020
		APPROX. SCALE:	1" = 90'

## **TABLES**

**Table 1**  
**Summary of Soil Analytical Results for TPH-G, TPH-D, TPH-O, and BTEX and Other VOCs**  
**Proposed Apartment Complex (East End of City Corporate Yard), 637 West Struck Avenue, Orange, California 92867**

Sample ID	Date Sampled	Sample Depth [1] (feet)	TPH-G [2] (mg/kg)	TPH-D [3] (mg/kg)	TPH-O [3] (mg/kg)	Benzene [4] (mg/kg)	Toluene [4] (mg/kg)	Ethylbenzene [4] (mg/kg)	Total Xylenes [4] (mg/kg)	Other VOCs [4] (mg/kg)
<b>SOIL BORING SB-1</b>										
<b>SB-1-0.5</b>	09/25/20	0.5	ND<0.20	ND<10	ND<20	ND<0.0040	ND<0.0050	ND<0.0050	ND<0.010	ND<varies
<b>SB-1-1</b>	09/25/20	1	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-1-2</b>	09/25/20	2	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-1-3</b>	09/25/20	3	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-1-5</b>	09/25/20	5	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-1-7</b>	09/25/20	7	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-1-10</b>	09/25/20	10	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-1-12</b>	09/25/20	12	NA	NA	NA	NA	NA	NA	NA	NA
<b>SOIL BORING SB-2</b>										
<b>SB-2-0.5</b>	09/25/20	0.5	ND<0.20	ND<10	ND<20	ND<0.0040	ND<0.0050	ND<0.0050	ND<0.010	ND<varies
<b>SB-2-1</b>	09/25/20	1	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-2-2</b>	09/25/20	2	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-2-3</b>	09/25/20	3	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-2-5</b>	09/25/20	5	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-2-7</b>	09/25/20	7	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-2-10</b>	09/25/20	10	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-2-12</b>	09/25/20	12	NA	NA	NA	NA	NA	NA	NA	NA
<b>SOIL BORING SB-3</b>										
<b>SB-3-0.5</b>	09/25/20	0.5	ND<0.20	11	ND<20	ND<0.0040	ND<0.0050	ND<0.0050	ND<0.010	ND<varies
<b>SB-3-1.5</b>	09/25/20	1.5	ND<0.20	ND<10	ND<20	ND<0.0040	ND<0.0050	ND<0.0050	ND<0.010	ND<varies
<b>SB-3-2.5</b>	09/25/20	2.5	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-3-3.5</b>	09/25/20	3.5	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-3-5</b>	09/25/20	5	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-3-7</b>	09/25/20	7	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-3-10</b>	09/25/20	10	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-3-12</b>	09/25/20	12	NA	NA	NA	NA	NA	NA	NA	NA
<b>SOIL BORING SB-4</b>										
<b>SB-4-0.5</b>	09/25/20	0.5	ND<0.20	37	51	ND<0.0040	ND<0.0050	ND<0.0050	ND<0.010	ND<varies
<b>SB-4-2</b>	09/25/20	2	ND<0.20	24	42	ND<0.0040	ND<0.0050	ND<0.0050	ND<0.010	ND<varies
<b>SB-4-3.5</b>	09/25/20	3.5	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-4-5</b>	09/25/20	5	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-4-7</b>	09/25/20	7	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-4-12</b>	09/25/20	12	NA	NA	NA	NA	NA	NA	NA	NA
<b>SOIL BORING SB-5</b>										
<b>SB-5-0.5</b>	09/25/20	0.5	ND<0.20	ND<10	ND<20	ND<0.0040	ND<0.0050	ND<0.0050	ND<0.010	ND<varies
<b>SB-5-1.5</b>	09/25/20	1.5	ND<0.20	ND<10	ND<20	ND<0.0040	ND<0.0050	ND<0.0050	ND<0.010	ND<varies
<b>SB-5-2.5</b>	09/25/20	2.5	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-5-3.5</b>	09/25/20	3.5	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-5-5</b>	09/25/20	5	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-5-7</b>	09/25/20	7	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-5-10</b>	09/25/20	10	NA	NA	NA	NA	NA	NA	NA	NA
<b>SB-5-12</b>	09/25/20	12	NA	NA	NA	NA	NA	NA	NA	NA

**Table 1**  
**Summary of Soil Analytical Results for TPH-G, TPH-D, TPH-O, and BTEX and Other VOCs**  
**Proposed Apartment Complex (East End of City Corporate Yard), 637 West Struck Avenue, Orange, California 92867**

Sample ID	Date Sampled	Sample Depth [1] (feet)	TPH-G [2] (mg/kg)	TPH-D [3] (mg/kg)	TPH-O [3] (mg/kg)	Benzene [4] (mg/kg)	Toluene [4] (mg/kg)	Ethylbenzene [4] (mg/kg)	Total Xylenes [4] (mg/kg)	Other VOCs [4] (mg/kg)
<b>SOIL BORING SB-6</b>										
SB-6-0.5	09/25/20	0.5	NA	NA	NA	NA	NA	NA	NA	NA
SB-6-1.5	09/25/20	1.5	NA	NA	NA	NA	NA	NA	NA	NA
SB-6-3	09/25/20	3	NA	NA	NA	NA	NA	NA	NA	NA
SB-6-5	09/25/20	5	NA	NA	NA	NA	NA	NA	NA	NA
SB-6-7	09/25/20	7	NA	NA	NA	NA	NA	NA	NA	NA
SB-6-10	09/25/20	10	NA	NA	NA	NA	NA	NA	NA	NA
SB-6-12	09/25/20	12	NA	NA	NA	NA	NA	NA	NA	NA
<b>SOIL BORING SB-7</b>										
SB-7-1	09/25/20	1	ND<0.20	ND<10	ND<20	ND<0.0040	ND<0.0050	ND<0.0050	ND<0.010	ND<varies
SB-7-1.5	09/25/20	1.5	NA	NA	NA	NA	NA	NA	NA	NA
SB-7-2.5	09/25/20	2.5	NA	NA	NA	NA	NA	NA	NA	NA
SB-7-5	09/25/20	5	NA	NA	NA	NA	NA	NA	NA	NA
SB-7-7	09/25/20	7	NA	NA	NA	NA	NA	NA	NA	NA
SB-7-10	09/25/20	10	NA	NA	NA	NA	NA	NA	NA	NA
SB-7-12	09/25/20	12	NA	NA	NA	NA	NA	NA	NA	NA
<b>SOIL BORING SB-8</b>										
SB-8-1.5	09/25/20	1.5	NA	NA	NA	NA	NA	NA	NA	NA
SB-8-3	09/25/20	3	NA	NA	NA	NA	NA	NA	NA	NA
SB-8-5	09/25/20	5	NA	NA	NA	NA	NA	NA	NA	NA
<b>SOIL BORING SB-9</b>										
SB-9-1.5	09/25/20	1.5	NA	NA	NA	NA	NA	NA	NA	NA
SB-9-3	09/25/20	3	NA	NA	NA	NA	NA	NA	NA	NA
SB-9-5	09/25/20	5	NA	NA	NA	NA	NA	NA	NA	NA
<b>DTSC Soil Screening Level for Residential Soil*</b>			<b>82</b>	<b>96</b>	<b>230,000</b>	<b>0.33</b>	<b>1,100</b>	<b>5.8</b>	<b>580</b>	<b>Varies</b>
<b>DTSC Soil Screening Level for Comm./Ind. Soil*</b>			<b>420</b>	<b>440</b>	<b>3,500,000</b>	<b>1.4</b>	<b>5,300</b>	<b>25</b>	<b>2,500</b>	<b>Varies</b>

**Notes:**

[1] Depths measured in feet below ground surface (the sample depths shown are the bottom depth of approximate 6-inch samples).

[2] Analyzed using California Leaking Underground Fuel Tank (LUFT) Gas Chromatograph/Mass Spectrometer (GC/MS) Method.

[3] Analyzed using United States Environmental Protection Agency (USEPA) Method 8015M.

[4] Analyzed using USEPA Method 8260B.

ID = identification

mg/kg = milligrams per kilogram

TPH-G = total petroleum hydrocarbons as gasoline, carbon range C4-C12

TPH-D = total petroleum hydrocarbons as diesel, carbon range C13-C22

TPH-O = total petroleum hydrocarbons as motor oil, carbon range C23-C40

BTEX = benzene, toluene, ethylbenzene, and total xylenes

VOCs = volatile organic compounds

NA = not analyzed

ND<0.20 = Not detected (ND) at or above the laboratory reporting limit (RL) shown.

11 = Analytical results at or above the laboratory RL are shown in **BOLD**.

**DTSC Soil Screening Level for Residential or Commercial/Industrial Soils** = California Department of Toxic Substances Control Human and Ecological Risk Office Human Health Risk Assessment Note

Number: 3, DTSC-Recommended Screening Levels for Soil Analytes (June 2020)

\* = Some DTSC Screening Levels are defined by USEPA Regional Screening Levels (May 2020).

**Table 2**  
**Summary of Soil Analytical Results for California Title 22 Heavy Metals**  
**Proposed Apartment Complex (East End of City Corporate Yard), 637 West Struck Avenue, Orange, California 92867**

Sample ID	Date Sampled	Sample Depth [1] (feet)	Total Heavy Metals																
			Ag [2] (mg/kg)	As [2] (mg/kg)	Ba [2] (mg/kg)	Be [2] (mg/kg)	Cd [2] (mg/kg)	Co [2] (mg/kg)	Cr [2] (mg/kg)	Cu [2] (mg/kg)	Hg [3] (mg/kg)	Mo [2] (mg/kg)	Ni [2] (mg/kg)	Pb [2] (mg/kg)	Sb [2] (mg/kg)	Se [2] (mg/kg)	Ti [2] (mg/kg)	V [2] (mg/kg)	Zn [2] (mg/kg)
SOIL BORING SB-1																			
SB-1-0.5	09/25/20	0.5	ND<0.985	2.01	56.6	ND<0.985	ND<0.985	4.09	12.9	12.6	ND<0.20	ND<0.985	10.9	17.9	ND<1.97	ND<0.985	ND<0.985	25.7	45.3
SB-1-1	09/25/20	1	NA	3.66	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-1-2	09/25/20	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-1-3	09/25/20	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-1-5	09/25/20	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-1-7	09/25/20	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-1-10	09/25/20	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-1-12	09/25/20	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SOIL BORING SB-2																			
SB-2-0.5	09/25/20	0.5	ND<0.995	6.92	108	ND<0.995	ND<0.995	6.28	18.4	17.7	ND<0.20	ND<0.995	11.8	34.2	ND<1.99	ND<0.995	ND<0.995	29.2	78.5
SB-2-1	09/25/20	1	NA	8.71	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-2-2	09/25/20	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-2-3	09/25/20	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-2-5	09/25/20	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-2-7	09/25/20	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-2-10	09/25/20	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-2-12	09/25/20	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SOIL BORING SB-3																			
SB-3-0.5	09/25/20	0.5	ND<1.01	4.14	110	ND<1.01	ND<1.01	3.57	17.7	17.0	ND<0.20	ND<1.01	7.45	17.9	ND<2.01	ND<1.01	ND<1.01	24.9	74.1
SB-3-1.5	09/25/20	1.5	ND<0.971	3.59	93.8	ND<0.971	ND<0.971	4.01	9.86	12.7	ND<0.20	ND<0.971	8.49	12.3	ND<1.94	ND<0.971	ND<0.971	20.4	54.9
SB-3-2.5	09/25/20	2.5	NA	3.68	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-3-3.5	09/25/20	3.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-3-5	09/25/20	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-3-7	09/25/20	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-3-10	09/25/20	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-3-12	09/25/20	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SOIL BORING SB-4																			
SB-4-0.5	09/25/20	0.5	ND<0.971	2.14	73.1	ND<0.971	ND<0.971	4.30	8.59	8.46	ND<0.20	ND<0.971	11.5	10.1	ND<1.94	ND<0.971	ND<0.971	23.9	47.7
SB-4-2	09/25/20	2	ND<1.01	1.70	49.9	ND<1.01	ND<1.01	3.35	8.21	5.72	ND<0.20	ND<1.01	8.64	17.0	ND<2.01	ND<1.01	ND<1.01	19.0	34.6
SB-4-3.5	09/25/20	3.5	NA	4.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-4-5	09/25/20	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-4-7	09/25/20	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-4-12	09/25/20	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SOIL BORING SB-5																			
SB-5-0.5	09/25/20	0.5	ND<0.971	4.45	94.5	ND<0.971	ND<0.971	5.07	11.6	13.8	ND<0.20	1.30	10.4	22.8	ND<1.94	ND<0.971	ND<0.971	24.0	77.7
SB-5-1.5	09/25/20	1.5	ND<0.995	3.70	86.2	ND<0.995	ND<0.995	6.11	59.1	15.1	ND<0.20	1.22	11.1	15.6	ND<1.99	ND<0.995	ND<0.995	77.5	59.5
SB-5-2.5	09/25/20	2.5	NA	2.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-5-3.5	09/25/20	3.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-5-5	09/25/20	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-5-7	09/25/20	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-5-10	09/25/20	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-5-12	09/25/20	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**Table 2**  
**Summary of Soil Analytical Results for California Title 22 Heavy Metals**  
**Proposed Apartment Complex (East End of City Corporate Yard), 637 West Struck Avenue, Orange, California 92867**

Sample ID	Date Sampled	Sample Depth [1] (feet)	Total Heavy Metals																
			Ag [2] (mg/kg)	As [2] (mg/kg)	Ba [2] (mg/kg)	Be [2] (mg/kg)	Cd [2] (mg/kg)	Co [2] (mg/kg)	Cr [2] (mg/kg)	Cu [2] (mg/kg)	Hg [3] (mg/kg)	Mo [2] (mg/kg)	Ni [2] (mg/kg)	Pb [2] (mg/kg)	Sb [2] (mg/kg)	Se [2] (mg/kg)	Tl [2] (mg/kg)	V [2] (mg/kg)	Zn [2] (mg/kg)
SOIL BORING SB-6																			
SB-6-0.5	09/25/20	0.5	NA	2.91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6-1.5	09/25/20	1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6-3	09/25/20	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6-5	09/25/20	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6-7	09/25/20	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6-10	09/25/20	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6-12	09/25/20	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SOIL BORING SB-7																			
SB-7-1	09/25/20	1	ND<1.03	5.66	54.5	ND<1.03	ND<1.03	6.61	282^	29.8	ND<0.20	4.63	5.64	5.12	ND<2.05	ND<1.03	ND<1.03	340	20.9
SB-7-1.5	09/25/20	1.5	NA	2.99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7-2.5	09/25/20	2.5	ND<0.985	4.85	130	ND<0.985	ND<0.985	7.49	16.0	20.3	ND<0.20	ND<0.985	14.3	9.18	ND<1.97	ND<0.985	ND<0.985	26.5	77.6
SB-7-5	09/25/20	5	ND<0.980	4.14	125	ND<0.980	ND<0.980	8.29	12.8	15.3	ND<0.20	ND<0.980	13.0	7.69	ND<1.96	ND<0.980	ND<0.980	27.1	62.6
SB-7-7	09/25/20	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7-10	09/25/20	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7-12	09/25/20	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SOIL BORING SB-8																			
SB-8-1.5	09/25/20	1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8-3	09/25/20	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8-5	09/25/20	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SOIL BORING SB-9																			
SB-9-1.5	09/25/20	1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9-3	09/25/20	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9-5	09/25/20	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DTSC Soil Screening Level for Residential Soil*			390	0.11~	15,000	16	71	23	NE	3,100	1.0	390	820	80	31	390	0.78	390	23,000
DTSC Soil Screening Level for Comm./Ind. Soil*			5,800	0.36~	220,000	230	780	350	NE	47,000	4.4	5,800	11,000	320	470	5,800	12	5,800	350,000

**Notes:**

[1] Depths measured in feet below ground surface (the sample depths shown are the bottom depth of approximate 6-inch samples).

[2] Analyzed using United States Environmental Protection Agency (USEPA) Method 6020.

[3] Analyzed using USEPA Method 7471A.

ID = identification

Ag = silver, As = arsenic, Ba = barium, Be = beryllium, Cd = cadmium, Co = cobalt, Cr = chromium, Cu = copper, Hg = mercury, Mo = molybdenum, Ni = nickel, Pb = lead, Sb = antimony, Se = selenium, Tl = thallium, V = vanadium, Zn = zinc

mg/kg = milligrams per kilogram

NA = not analyzed

ND<0.985 = Not detected (ND) at or above the specified laboratory reporting limit (RL).

2.01 = Analytical results at or above the laboratory RL are shown in **BOLD**.

^ = Due to the high concentration of total chromium, this sample was further analyzed for chromium (VI) [ND<0.2 mg/kg], California Soluble Threshold Limit Concentration (STLC) [1.28 mg/L], and federal Toxicity Characteristic Leaching Procedure (TCLP) [ND<0.200 mg/L].

**DTSC Soil Screening Level for Residential or Commercial/Industrial Soils** = California Department of Toxic Substances Control Human and Ecological Risk Office Human Health Risk Assessment Note Number: 3, DTSC-Recommended Screening Levels for Soil

Analytes (June 2020)

\* = Some DTSC Screening Levels are defined by USEPA Regional Screening Levels (May 2020).

~ Naturally occurring background concentrations of arsenic often exceed regulatory screening levels. Regulatory agencies generally do not require cleanup of soil to below background levels.

NE = Not established for total chromium, which can be mixtures of chromium (III) and chromium (VI). Screening levels are available for chromium (III) and chromium (VI) separately.



**Table 3**  
**Summary of Soil Analytical Results for Boron & Organochlorine Pesticides**  
**Proposed Apartment Complex (East End of City Corporate Yard), 637 West Struck Avenue, Orange, California 92867**

Sample ID	Date Sampled	Sample Depth [1] (feet)	Boron [2] (mg/kg)	OCPs				
				DDD [3] (mg/kg)	DDE [3] (mg/kg)	DDT [3] (mg/kg)	Chlordane [3] (mg/kg)	Other OCPs [3] (mg/kg)
SOIL BORING SB-1								
SB-1-0.5	09/25/20	0.5	NA	NA	NA	NA	NA	NA
SB-1-1	09/25/20	1	NA	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<varies
SB-1-2	09/25/20	2	NA	NA	NA	NA	NA	NA
SB-1-3	09/25/20	3	NA	NA	NA	NA	NA	NA
SB-1-5	09/25/20	5	NA	NA	NA	NA	NA	NA
SB-1-7	09/25/20	7	NA	NA	NA	NA	NA	NA
SB-1-10	09/25/20	10	NA	NA	NA	NA	NA	NA
SB-1-12	09/25/20	12	NA	NA	NA	NA	NA	NA
SOIL BORING SB-2								
SB-2-0.5	09/25/20	0.5	NA	NA	NA	NA	NA	NA
SB-2-1	09/25/20	1	NA	ND<0.0020	0.0026	ND<0.0020	0.011	ND<varies
SB-2-2	09/25/20	2	NA	NA	NA	NA	NA	NA
SB-2-3	09/25/20	3	NA	NA	NA	NA	NA	NA
SB-2-5	09/25/20	5	NA	NA	NA	NA	NA	NA
SB-2-7	09/25/20	7	NA	NA	NA	NA	NA	NA
SB-2-10	09/25/20	10	NA	NA	NA	NA	NA	NA
SB-2-12	09/25/20	12	NA	NA	NA	NA	NA	NA
SOIL BORING SB-3								
SB-3-0.5	09/25/20	0.5	NA	NA	NA	NA	NA	NA
SB-3-1.5	09/25/20	1.5	NA	NA	NA	NA	NA	NA
SB-3-2.5	09/25/20	2.5	NA	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.010	ND<varies
SB-3-3.5	09/25/20	3.5	NA	NA	NA	NA	NA	NA
SB-3-5	09/25/20	5	NA	NA	NA	NA	NA	NA
SB-3-7	09/25/20	7	NA	NA	NA	NA	NA	NA
SB-3-10	09/25/20	10	NA	NA	NA	NA	NA	NA
SB-3-12	09/25/20	12	NA	NA	NA	NA	NA	NA
SOIL BORING SB-4								
SB-4-0.5	09/25/20	0.5	NA	NA	NA	NA	NA	NA
SB-4-2	09/25/20	2	NA	NA	NA	NA	NA	NA
SB-4-3.5	09/25/20	3.5	NA	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.010	ND<varies
SB-4-5	09/25/20	5	NA	NA	NA	NA	NA	NA
SB-4-7	09/25/20	7	NA	NA	NA	NA	NA	NA
SB-4-12	09/25/20	12	NA	NA	NA	NA	NA	NA

**Table 3**  
**Summary of Soil Analytical Results for Boron & Organochlorine Pesticides**  
**Proposed Apartment Complex (East End of City Corporate Yard), 637 West Struck Avenue, Orange, California 92867**

Sample ID	Date Sampled	Sample Depth [1] (feet)	Boron [2] (mg/kg)	OCPs				
				DDD [3] (mg/kg)	DDE [3] (mg/kg)	DDT [3] (mg/kg)	Chlordane [3] (mg/kg)	Other OCPs [3] (mg/kg)
SOIL BORING SB-5								
SB-5-0.5	09/25/20	0.5	NA	NA	NA	NA	NA	NA
SB-5-1.5	09/25/20	1.5	NA	NA	NA	NA	NA	NA
SB-5-2.5	09/25/20	2.5	NA	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.010	ND<varies
SB-5-3.5	09/25/20	3.5	NA	NA	NA	NA	NA	NA
SB-5-5	09/25/20	5	NA	NA	NA	NA	NA	NA
SB-5-7	09/25/20	7	NA	NA	NA	NA	NA	NA
SB-5-10	09/25/20	10	NA	NA	NA	NA	NA	NA
SB-5-12	09/25/20	12	NA	NA	NA	NA	NA	NA
SOIL BORING SB-6								
SB-6-0.5	09/25/20	0.5	NA	ND<0.0020	0.0028	ND<0.0020	0.011	ND<varies
SB-6-1.5	09/25/20	1.5	NA	NA	NA	NA	NA	NA
SB-6-3	09/25/20	3	NA	NA	NA	NA	NA	NA
SB-6-5	09/25/20	5	NA	NA	NA	NA	NA	NA
SB-6-7	09/25/20	7	NA	NA	NA	NA	NA	NA
SB-6-10	09/25/20	10	NA	NA	NA	NA	NA	NA
SB-6-12	09/25/20	12	NA	NA	NA	NA	NA	NA
SOIL BORING SB-7								
SB-7-1	09/25/20	1	NA	NA	NA	NA	NA	NA
SB-7-1.5	09/25/20	1.5	NA	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.010	ND<varies
SB-7-2.5	09/25/20	2.5	NA	NA	NA	NA	NA	NA
SB-7-5	09/25/20	5	NA	NA	NA	NA	NA	NA
SB-7-7	09/25/20	7	NA	NA	NA	NA	NA	NA
SB-7-10	09/25/20	10	NA	NA	NA	NA	NA	NA
SB-7-12	09/25/20	12	NA	NA	NA	NA	NA	NA
SOIL BORING SB-8								
SB-8-1.5	09/25/20	1.5	39.2	NA	NA	NA	NA	NA
SB-8-3	09/25/20	3	42.8	NA	NA	NA	NA	NA
SB-8-5	09/25/20	5	NA	NA	NA	NA	NA	NA
SOIL BORING SB-9								
SB-9-1.5	09/25/20	1.5	45.8	NA	NA	NA	NA	NA
SB-9-3	09/25/20	3	51.2	NA	NA	NA	NA	NA
SB-9-5	09/25/20	5	NA	NA	NA	NA	NA	NA

**Table 3**  
**Summary of Soil Analytical Results for Boron & Organochlorine Pesticides**  
**Proposed Apartment Complex (East End of City Corporate Yard), 637 West Struck Avenue, Orange, California 92867**

Sample ID	Date Sampled	Sample Depth [1] (feet)	Boron [2] (mg/kg)	OCPs				
				DDD [3] (mg/kg)	DDE [3] (mg/kg)	DDT [3] (mg/kg)	Chlordane [3] (mg/kg)	Other OCPs [3] (mg/kg)
DTSC Soil Screening Level for Residential Soil*			16,000	1.9	2.0	1.9	1.7	Varies
DTSC Soil Screening Level for Comm./Ind. Soil*			230,000	6.2	9.3	7.1	6.1	Varies

**Notes:**

[1] Depths measured in feet below ground surface (the sample depths shown are the bottom depth of approximate 6-inch samples).

[2] Analyzed using United States Environmental Protection Agency (USEPA) Method 6010B.

[3] Analyzed using USEPA Method 8081A.

ID = identification

mg/kg = milligrams per kilogram

OCPs = organochlorine pesticides

DDD = 4,4'-dichlorodiphenyldichloroethane

DDE = 4,4'-dichlorodiphenyldichloroethene

DDT = 4,4'-dichlorodiphenyltrichloroethane

ND<0.0020 = Not detected (ND) at or above the specified laboratory reporting limit (RL).

**0.0026** = Analytical results at or above the laboratory RL are shown in **BOLD**.

**DTSC Soil Screening Level for Residential or Commercial/Industrial Soils** = California Department of Toxic Substances Control Human and Ecological Risk Office Human Health Risk Assessment Note

Number: 3, DTSC-Recommended Screening Levels for Soil Analytes (June 2020)

\* = Some DTSC Screening Levels are defined by USEPA Regional Screening Levels (May 2020).

**Table 4**  
**Summary of Soil Vapor Analytical Results for TPH-G and Volatile Organic Compounds**  
**Proposed Apartment Complex (East End of City Corporate Yard), 637 West Struck Avenue, Orange, California 92867**

Sample ID	Date Sampled	Sample Depth [1] (feet)	TPH-G [2] (µg/L)	Benzene [3] (µg/L)	Toluene [3] (µg/L)	Ethylbenzene [3] (µg/L)	Total Xylenes [3] (µg/L)	1,2,4-TMB [3] (µg/L)	1,3,5-TMB [3] (µg/L)	Dichlorodifluoromethane [3] (µg/L)
SVP-1-7	09/29/20	7	1.6J	0.010J	0.060	ND<0.0065	0.12	0.030	ND<0.0065	3.3
SVP-1-12	09/29/20	12	ND<1.25	ND<0.0031	0.040	ND<0.0065	0.070	ND<0.0065	ND<0.0065	2.9
SVP-2-7	09/29/20	7	2.0J	0.012J	0.070	ND<0.0065	0.12	0.050	ND<0.0065	1.3
SVP-3-7	09/29/20	7	ND<1.25	0.010J	0.050	ND<0.0065	0.080	ND<0.0065	ND<0.0065	1.3
SVP-3-12	09/29/20	12	1.5J	ND<0.0031	0.040	ND<0.0065	0.040	ND<0.0065	ND<0.0065	1.8
SVP-4-7	09/29/20	7	1.9J	0.011J	0.070	ND<0.0065	0.12	0.030	ND<0.0065	0.98
SVP-4-12	09/29/20	12	ND<1.25	0.012J	ND<0.0065	ND<0.0065	ND<0.0195	ND<0.0065	ND<0.0065	0.93
SVP-5-7	09/29/20	7	1.3J	ND<0.0031	0.040	ND<0.0065	0.070	ND<0.0065	ND<0.0065	2.0
SVP-5-7 DUP	09/29/20	7	ND<1.25	ND<0.0031	0.030	ND<0.0065	0.040	ND<0.0065	ND<0.0065	1.6
SVP-5-12	09/29/20	12	1.3J	ND<0.0031	0.040	ND<0.0065	0.070	ND<0.0065	ND<0.0065	2.0
SVP-6-7	09/29/20	7	ND<1.25	ND<0.0031	0.030	ND<0.0065	ND<0.0195	ND<0.0065	ND<0.0065	0.10
SVP-7-7	09/29/20	7	3.7	0.11	0.10	0.040	0.21	0.12	0.060	0.080
SVP-7-12	09/29/20	12	5.2	ND<0.0031	0.060	ND<0.0065	0.59	0.040	ND<0.0065	0.13
DTSC Soil Screening Level for Residential Soil Vapor*			1.03	0.003	10.33	0.037	3.33	2.1	2.1	3.33
DTSC Soil Screening Level for Comm./Ind. Soil Vapor*			4.33	0.014	43.33	0.16	14.67	8.67	8.67	14.67

**Notes:**

[1] Depths measured in feet below ground surface.

[2] Analyzed using California Leaking Underground Fuel Tank (LUFT) Gas Chromatograph/Mass Spectrometer (GC/MS) Method.

[3] Analyzed using United States Environmental Protection Agency (USEPA) Method 8260B.

ID = identification

µg/L = micrograms per liter

TPH-G = total petroleum hydrocarbons as gasoline

TMB = trimethylbenzene

ND<0.0065 = Not detected (ND) at the specified method detection limit (MDL).

0.060 = Analytical results at or above the laboratory MDL are shown in **BOLD**.

1.6J = Analytical results at or above the laboratory MDL, but less than the laboratory reporting limit, are flagged with a "J".

**DTSC Soil Screening Level for Residential or Commercial/Industrial Soil Vapor** = California Department of Toxic Substances Control Human and Ecological Risk Office Human Health Risk Assessment Note Number: 3, DTSC-Recommended Screening Levels for Ambient Air Analytes (June 2020) with an attenuation factor of 0.03 applied. Some DTSC Screening Levels are defined by USEPA Regional Screening Levels (May 2020) with the attenuation factor (0.03) applied.

## **APPENDIX A**

### **Color Photographs**



**Photo 1** - View facing east, showing the Interphase Environmental, Inc. direct-push rig breaking through the asphalt at soil boring SB-9, prior to hand auger advancement of the soil boring for soil sample collection to assess potential impacts from the buckets of orthoboric acid shown to the right.



**Photo 2** - The cement patch, dyed black, is shown for soil boring SB-9. A similar patch was placed for soil boring SB-8, located west of the buckets of orthoboric acid.





**Photo 3** - View facing northeast, showing the direct-push rig advancement at SB-3/SVP-3. Construction materials for the soil vapor probe are shown near the advancing push rod, including bentonite granules, #3 Monterey sand, and water.



**Photo 4** - The soil vapor probes at SB-3/SVP-3 are shown, including 7-foot and 12-foot probes. The shorter tubing at each onsite soil vapor probe location was the 7-foot probe, with the longer tubing the 12-foot probe. The soil vapor probes were labeled with tape as well.





**Photo 5** - Southerly view showing the A & R Laboratories, Inc. mobile laboratory, situated just east to northeast of the location for SB-7/SVP-7 which is marked by the orange delineator shown to the right.



**Photo 6** - The collection of the soil vapor sample from the 12-foot probe at SB-7/SVP-7 is shown. The light turquoise colored glove near the probe tubing emerging from the ground has a leak detection compound (isopropanol).



## **APPENDIX B**

### **Soil Boring Logs**

# LOG OF BORING

## SB-1

DEPTH IN FEET	SAMPLE IDENTIFICATION NUMBER	TIME (24-hour clock)	TPH-D (mg/kg)	TPH-O (mg/kg)	SAMPLE	LITHOLOGY	U.S.C.S	DESCRIPTION
0	SB-1-0.5	1044	ND<10	ND<20	■			@ 0 feet, Asphalt concrete grindings, 0.83' thick.
	SB-1-1	1045	NA	NA	■		CL	@ 0.83 foot, <u>ALLUVIUM</u> : LEAN CLAY with SAND, approximately 30% medium grained sand, 70% clayey fines of low plasticity, red-brown, damp.
	SB-1-2	1046	NA	NA	■			
	SB-1-3	1047	NA	NA	■			
5	SB-1-5	1048	NA	NA	■		SC	@ 4 feet, CLAYEY SAND, approximately 5% gravel to 1", 15% coarse grained sand, 20% medium grained sand, 20% fine grained sand, 40% clayey fines of low plasticity, red-brown, damp.
	SB-1-7	1051	NA	NA	■		SW SC	@ 6 feet, WELL GRADED SAND with CLAY, approximately 10% gravel to 1", 25% coarse grained sand, 25% medium grained sand, 30% coarse grained sand, 10% clayey fines, speckled gray-brown, dry.
10	SB-1-10	1053	NA	NA	■			
	SB-1-12	1055	NA	NA	■			
15								END BORING @ 13'  Fill to 0.83' No groundwater No bedrock No soil staining or odor   TPH-D = total petroleum hydrocarbons as diesel (C13-C22) TPH-O = total petroleum hydrocarbons as oil (C23-C40) mg/kg = milligrams per kilogram U.S.C.S. = Unified Soil Classification System ND<10 = not detected at the laboratory reporting limit shown NA = not analyzed

PROJECT: Proposed Apartment Complex

PROJECT NUMBER: 33616.21

CLIENT: C & C Development Co., LLC

DATE DRILLED: September 25, 2020

**LOR** GEOTECHNICAL GROUP INC.

DATE BACKFILLED: September 25, 2020

EQUIPMENT: Geoprobe 6600

HOLE DIA.: 2.25" ENCLOSURE: B-1

# LOG OF BORING

## SB-2

DEPTH IN FEET	SAMPLE IDENTIFICATION NUMBER	TIME (24-hour clock)	TPH-D (mg/kg)	TPH-O (mg/kg)	SAMPLE	LITHOLOGY	U.S.C.S	DESCRIPTION
0	SB-2-0.5	0945	ND<10	ND<20	■		CL	@ 0 feet, Asphalt concrete, 0.16' thick.
	SB-2-1	0946	NA	NA	■		CL	@ 0.16 foot, <u>FILL</u> : SANDY LEAN CLAY, approximately 5% coarse grained sand, 15% medium grained sand, 15% fine grained sand, 65% clayey fines of low plasticity, gray, damp, wire debris.
	SB-2-2	0947	NA	NA	■		CL	@ 0.75 foot, <u>ALLUVIUM</u> : SANDY LEAN CLAY, approximately 5% medium grained sand, 30% fine grained sand, 65% clayey fines of low plasticity, red-brown, dry to damp.
	SB-2-3	0948	NA	NA	■		CL	@ 2 feet, becomes damp.
5	SB-2-5	0949	NA	NA	■		CL	
	SB-2-7	0951	NA	NA	■		SW SC	@ 6 feet, WELL GRADED SAND with GRAVEL and CLAY, approximately 15% gravel to 1", 25% coarse grained sand, 25% medium grained sand, 25% fine grained sand, 10% clayey fines, speckled gray-brown.
10	SB-2-10	0953	NA	NA	■		CL	
	SB-2-12	0955	NA	NA	■		CL	@ 10.5 feet, LEAN CLAY with SAND, approximately 25% fine grained sand, 75% clayey fines of low plasticity, red-brown, damp.
15								END BORING @ 13'
								Fill to 0.75' No groundwater No bedrock No soil staining or odor
								TPH-D = total petroleum hydrocarbons as diesel (C13-C22) TPH-O = total petroleum hydrocarbons as oil (C23-C40) mg/kg = milligrams per kilogram U.S.C.S. = Unified Soil Classification System ND<10 = not detected at the laboratory reporting limit shown NA = not analyzed

PROJECT: Proposed Apartment Complex

PROJECT NUMBER: 33616.21

CLIENT: C & C Development Co., LLC

DATE DRILLED: September 25, 2020

**LOR** GEOTECHNICAL GROUP INC.



DATE BACKFILLED: September 25, 2020

EQUIPMENT: Geoprobe 6600

HOLE DIA.: 2.25" ENCLOSURE: B-2

# LOG OF BORING

## SB-3

DEPTH IN FEET	SAMPLE IDENTIFICATION NUMBER	TIME (24-hour clock)	TPH-D (mg/kg)	TPH-O (mg/kg)	SAMPLE	LITHOLOGY	U.S.C.S	DESCRIPTION
0	SB-3-0.5	1406	11	ND<20	■		SC	@ 0 feet, <u>FILL</u> : CLAYEY SAND, approximately 15% coarse grained sand, 30% medium grained sand, 30% fine grained sand, 25% clayey fines of low plasticity, red-brown, damp, some brick debris.
	SB-3-1.5	1407	ND<10	ND<20	■			
	SB-3-2.5	1408	NA	NA	■		CL	@ 2 feet, <u>ALLUVIUM</u> : SANDY LEAN CLAY, approximately 10% medium grained sand, 30% fine grained sand, 60% clayey fines of low plasticity, red-brown, damp.
	SB-3-3.5	1409	NA	NA	■			@ 4 feet, slight increase in moisture.
5	SB-3-5	1410	NA	NA	■			
	SB-3-7	1411	NA	NA	■		SW SC	@ 7.5 feet, WELL GRADED SAND with CLAY, approximately 10% gravel to 1/2", 20% coarse grained sand, 25% medium grained sand, 35% fine grained sand, 10% clayey fines, speckled red-brown, dry.
10	SB-3-10	1413	NA	NA	■			
	SB-3-12	1415	NA	NA	■			
15								END BORING @ 13'
								Fill to 2' No groundwater No bedrock No soil staining or odor
								TPH-D = total petroleum hydrocarbons as diesel (C13-C22) TPH-O = total petroleum hydrocarbons as oil (C23-C40) mg/kg = milligrams per kilogram U.S.C.S. = Unified Soil Classification System ND<10 = not detected at the laboratory reporting limit shown NA = not analyzed

PROJECT: Proposed Apartment Complex

PROJECT NUMBER: 33616.21

CLIENT: C & C Development Co., LLC

DATE DRILLED: September 25, 2020

**LOR** GEOTECHNICAL GROUP INC.

DATE BACKFILLED: September 25, 2020

EQUIPMENT: Geoprobe 6600

HOLE DIA.: 2.25" ENCLOSURE: B-3

# LOG OF BORING

## SB-4

DEPTH IN FEET	SAMPLE IDENTIFICATION NUMBER	TIME (24-hour clock)	TPH-D (mg/kg)	TPH-O (mg/kg)	SAMPLE	LITHOLOGY	U.S.C.S.	DESCRIPTION
0	SB-4-0.5	1325	37	51	■			@ 0 feet, <u>FILL</u> : Asphalt concrete grindings. Poor soil sample recoveries were obtained in this boring.
	SB-4-2	1326	24	42	■			
	SB-4-3.5	1327	NA	NA	■		CL	@ 3 feet, <u>ALLUVIUM</u> : LEAN CLAY with SAND, approximately 20% fine grained sand, 80% clayey fines of low plasticity, red-brown, moist. @ 4 feet, becomes damp.
5	SB-4-5	1332	NA	NA	■			
	SB-4-7	1334	NA	NA	■			@ 6 feet, 6" thick moist layer.
							SC	@ 7.5 feet, CLAYEY SAND, approximately 5% coarse grained sand to 1/2", 25% coarse grained sand, 25% medium grained sand, 30% fine grained sand, 15% silty fines, red-brown, damp.
10	SB-4-12	1336	NA	NA	■			
							SW SC	@ 12 feet, WELL GRADED SAND with GRAVEL and CLAY, approximately 15% gravel to 1/2", 25% coarse grained sand, 25% medium grained sand, 25% fine grained sand, 10% clayey fines, speckled gray-brown, dry.
15								END BORING @ 13'
								Fill to 3' No groundwater No bedrock No soil staining or odor
								TPH-D = total petroleum hydrocarbons as diesel (C13-C22) TPH-O = total petroleum hydrocarbons as oil (C23-C40) mg/kg = milligrams per kilogram U.S.C.S. = Unified Soil Classification System NA = not analyzed

PROJECT: Proposed Apartment Complex

PROJECT NUMBER: 33616.21

CLIENT: C & C Development Co., LLC

DATE DRILLED: September 25, 2020

**LOR** GEOTECHNICAL GROUP INC.



DATE BACKFILLED: September 25, 2020

EQUIPMENT: Geoprobe 6600

HOLE DIA.: 2.25" ENCLOSURE: B-4

# LOG OF BORING

## SB-5

DEPTH IN FEET	SAMPLE IDENTIFICATION NUMBER	TIME (24-hour clock)	TPH-D (mg/kg)	TPH-O (mg/kg)	SAMPLE	LITHOLOGY	U.S.C.S.	DESCRIPTION
0	SB-5-0.5	1228	ND<10	ND<20	■		SC CL	@ 0 feet, <u>FILL</u> : CLAYEY SAND/LEAN CLAY with SAND, approximately 5% gravel to 1/2", 15% coarse grained sand, 15% medium grained sand, 15% fine grained sand, 50% clayey fines of low plasticity, gray-brown, damp, some brick debris.
	SB-5-1.5	1229	ND<10	ND<20	■			
	SB-5-2.5	1230	NA	NA	■		CL	@ 2 feet, <u>ALLUVIUM</u> : LEAN CLAY with SAND, approximately 20% fine grained sand, 80% clayey fines of low plasticity, red-brown, damp.
	SB-5-3.5	1231	NA	NA	■			
5	SB-5-5	1232	NA	NA	■			
	SB-5-7	1235	NA	NA	■		SW SC	@ 5 feet, SANDY LEAN CLAY, becomes slightly coarser grained, approximately 10% medium grained sand, 30% fine grained sand, 60% clayey fines of low plasticity, red-brown, damp.
	SB-5-10	1237	NA	NA	■			@ 7 feet, WELL GRADED SAND with GRAVEL and CLAY, approximately 15% gravel to 3/4", 25% coarse grained sand, 25% medium grained sand, 25% fine grained sand, 10% clayey fines, speckled gray-brown, dry.
10	SB-5-12	1239	NA	NA	■			
15								END BORING @ 13'  Fill to 2' No groundwater No bedrock No soil staining or odor   TPH-D = total petroleum hydrocarbons as diesel (C13-C22) TPH-O = total petroleum hydrocarbons as oil (C23-C40) mg/kg = milligrams per kilogram U.S.C.S. = Unified Soil Classification System ND<10 = not detected at the laboratory reporting limit shown NA = not analyzed

PROJECT: Proposed Apartment Complex

PROJECT NUMBER: 33616.21

CLIENT: C & C Development Co., LLC

DATE DRILLED: September 25, 2020

**LOR** GEOTECHNICAL GROUP INC.

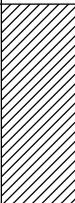


DATE BACKFILLED: September 25, 2020

EQUIPMENT: Geoprobe 6600

HOLE DIA.: 2.25" ENCLOSURE: B-5

# LOG OF BORING

## SB-6

LOG OF BORING								
SB-6								
DEPTH IN FEET	SAMPLE IDENTIFICATION NUMBER	TIME (24-hour clock)	TPH-D (mg/kg)	TPH-O (mg/kg)	SAMPLE	LITHOLOGY	U.S.C.S	DESCRIPTION
0	SB-6-0.5	1137	NA	NA	■		CL	@ 0 feet, <u>ALLUVIUM</u> : LEAN CLAY with SAND, approximately 10% medium grained sand, 20% fine grained sand, 70% clayey fines with low plasticity, red-brown, damp.
	SB-6-1.5	1138	NA	NA	■			
	SB-6-3	1139	NA	NA	■			
	SB-6-5	1140	NA	NA	■		SW SC	@ 3 feet, WELL GRADED SAND with GRAVEL and CLAY, approximately 15% gravel to 3/4", 25% coarse grained sand, 25% medium grained sand, 25% fine grained sand, 0% clayey fines, speckled gray-brown, dry.
5	SB-6-7	1143	NA	NA	■		CL SW SC	@ 5 feet, 2" to 3" thick layer of lean clay with sand.
	SB-6-10	1145	NA	NA	■		SW SC	@ 8 feet, WELL GRADED SAND with CLAY, approximately 10% gravel to 1/2", 25% coarse grained sand, 25% medium grained sand, 30% fine grained sand, 10% clayey fines, brown, damp.
10	SB-6-12	1147	NA	NA	■			
15								END BORING @ 13'
								No fill No groundwater No bedrock No soil staining or odor
								TPH-D = total petroleum hydrocarbons as diesel (C13-C22) TPH-O = total petroleum hydrocarbons as oil (C23-C40) mg/kg = milligrams per kilogram U.S.C.S. = Unified Soil Classification System NA = not analyzed

PROJECT: Proposed Apartment Complex

PROJECT NUMBER: 33616.21

CLIENT: C & C Development Co., LLC

DATE DRILLED: September 25, 2020

**LOR** GEOTECHNICAL GROUP INC.

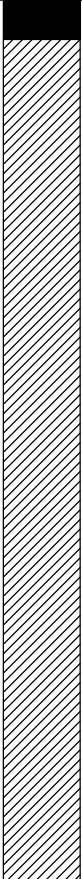
DATE BACKFILLED: September 25, 2020

EQUIPMENT: Geoprobe 6600

HOLE DIA.: 2.25" ENCLOSURE: B-6

# LOG OF BORING

## SB-7

DEPTH IN FEET	SAMPLE IDENTIFICATION NUMBER	TIME (24-hour clock)	TPH-D (mg/kg)	TPH-O (mg/kg)	SAMPLE	LITHOLOGY	U.S.C.S	DESCRIPTION
0								@ 0 feet, Asphalt concrete grindings, 0.58' thick.
	SB-7-1	0904	ND<10	ND<20	█		CL	@ 0.58 foot, <u>FILL</u> : SANDY LEAN CLAY, trace gravel to 1/2", approximately 5% coarse grained sand, 10% medium grained sand, 25% fine grained sand, 60% clayey fines of low plasticity, red-brown, damp.
	SB-7-1.5	0905	NA	NA	█			@ 1 foot, <u>ALLUVIUM</u> : SANDY LEAN CLAY, approximately 5% medium grained sand, 30% fine grained sand, 65% clayey fines, red-brown, damp.
	SB-7-2.5	0906	NA	NA	█			
5	SB-7-5	0907	NA	NA	█			@ 5 feet, SANDY LEAN CLAY, approximately 40% fine grained sand, 60% clayey fines of low plasticity, red-brown, dry to damp.
	SB-7-7	0909	NA	NA	█			
10	SB-7-10	0911	NA	NA	█			@ 10 feet, LEAN CLAY with SAND, approximately 20% medium grained sand, 80% clayey fines of low plasticity, red-brown, damp.
	SB-7-12	0913	NA	NA	█			
15								END BORING @ 13'
								Fill to 1' No groundwater No bedrock No soil staining or odor
								TPH-D = total petroleum hydrocarbons as diesel (C13-C22) TPH-O = total petroleum hydrocarbons as oil (C23-C40) mg/kg = milligrams per kilogram U.S.C.S. = Unified Soil Classification System ND<10 = not detected at the laboratory reporting limit shown NA = not analyzed

PROJECT: Proposed Apartment Complex

PROJECT NUMBER: 33616.21

CLIENT: C & C Development Co., LLC

DATE DRILLED: September 25, 2020

**LOR** GEOTECHNICAL GROUP INC.

DATE BACKFILLED: September 25, 2020

EQUIPMENT: Geoprobe 6600

HOLE DIA.: 2.25" ENCLOSURE: B-7



# LOG OF BORING

## SB-8

DEPTH IN FEET	SAMPLE IDENTIFICATION NUMBER	TIME (24-hour clock)	TPH-D (mg/kg)	TPH-O (mg/kg)	SAMPLE	LITHOLOGY	U.S.C.S	DESCRIPTION
0								@ 0 feet, Asphalt concrete, 0.25' thick. @ 0.25 foot, Asphalt concrete grindings, 0.5' thick.
	SB-8-1.5	0830	NA	NA	█	▨	CL	@ 0.75 foot, ALLUVIUM: LEAN CLAY with SAND, approximately 5% medium grained sand, 20% fine grained sand, 75% clayey fines of low plasticity, red-brown, damp.
	SB-8-3	0836	NA	NA	█	▨		
	SB-8-5	0839	NA	NA	█	▨		
5								@ 5 feet, SANDY LEAN CLAY, slightly coarser grained, approximately 40% fine grained sand, 60% clayey fines of low plasticity, red-brown, dry to damp. END BORING @ 5'  No fill No groundwater No bedrock No soil staining or odor
TPH-D = total petroleum hydrocarbons as diesel (C13-C22) TPH-O = total petroleum hydrocarbons as oil (C23-C40) mg/kg = milligrams per kilogram U.S.C.S. = Unified Soil Classification System NA = not analyzed								

PROJECT: Proposed Apartment Complex

PROJECT NUMBER: 33616.21

CLIENT: C & C Development Co., LLC

DATE DRILLED: September 25, 2020

**LOR** GEOTECHNICAL GROUP INC.


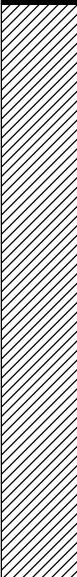
DATE BACKFILLED: September 25, 2020

EQUIPMENT: Geoprobe 6600

HOLE DIA.: 2.25" ENCLOSURE: B-8

# LOG OF BORING

## SB-9

DEPTH IN FEET	SAMPLE IDENTIFICATION NUMBER	TIME (24-hour clock)	TPH-D (mg/kg)	TPH-O (mg/kg)	SAMPLE	LITHOLOGY	U.S.C.S	DESCRIPTION
0								@ 0 feet, Asphalt concrete, 0.42' thick.
	SB-9-1.5	0750	NA	NA	█		CL	@ 0.42 foot, Asphalt concrete grindings, 0.33' thick.
								@ 0.75 foot, ALLUVIUM: LEAN CLAY with SAND, approximately 5% medium grained sand, 25% fine grained sand, 70% clayey fines of low plasticity, red-brown, damp.
	SB-9-3	0758	NA	NA	█			@ 3 feet, slight increase in moisture.
								@ 4 feet, SANDY LEAN CLAY, approximately 40% fine grained sand, 60% clayey fines of low plasticity, red-brown, damp.
5	SB-9-5	0805	NA	NA	█			
								END BORING @ 5'
								No fill No groundwater No bedrock No soil staining or odor
								TPH-D = total petroleum hydrocarbons as diesel (C13-C22) TPH-O = total petroleum hydrocarbons as oil (C23-C40) mg/kg = milligrams per kilogram U.S.C.S. = Unified Soil Classification System NA = not analyzed

PROJECT:	Proposed Apartment Complex	PROJECT NUMBER:	33616.21
CLIENT:	C & C Development Co., LLC	DATE DRILLED:	September 25, 2020
<b>LOR</b> GEOTECHNICAL GROUP INC.		DATE BACKFILLED:	September 25, 2020
		EQUIPMENT:	Geoprobe 6600
		HOLE DIA.: 2.25"	ENCLOSURE: B-9

## **APPENDIX C**

### **Laboratory Analytical Reports for Soil Samples**



# A & R Laboratories, Inc.

1650 S. GROVE AVE., SUITE C

ONTARIO, CA 91761

951-779-0310

www.arlaboratories.com

FAX 951-779-0344

office@arlaboratories.com

FDA#	2030513
LA City#	10261
ELAP#s	2789
	2790
	2122

CHEMISTRY · MICROBIOLOGY · FOOD SAFETY · MOBILE LABORATORIES  
FOOD · COSMETICS · WATER · SOIL · SOIL VAPOR · WASTES

## CASE NARRATIVE

Authorized Signature Name / Title (print)

Ken Zheng, President

Signature / Date

Ken Zheng, President  
10/02/2020 18:16:04

Laboratory Job No. (Certificate of Analysis No.)

2009-00227

Project Name / No.

CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. /  
33616.21

Dates Sampled (from/to)

09/25/20 To 09/25/20

Dates Received (from/to)

09/25/20 To 09/25/20

Dates Reported (from/to)

10/02/20 To 10/2/2020

Chains of Custody Received

Yes

Comments:

### Subcontracting

#### Organic Analyses

No analyses sub-contracted

#### Inorganic Analyses

16 EPA 6020 sample(s) reported by technician CEL were contracted to Eurofins Calscience

All results for sub-contracted analyses may be sent separately

### Sample Condition(s)

All samples intact

### Positive Results (Organic Compounds)

Sample	Analyte	Result	Qual	Units	RL	Sample	Analyte	Result	Qual	Units	RL
SB-2-1	4,4'-DDE	0.0026		mg/Kg	0.0020	SB-2-1	Chlordane	0.011		mg/Kg	0.010
SB-3-0.5	C13-C22	11		mg/Kg	10	SB-4-0.5	C13-C22	37		mg/Kg	10
SB-4-0.5	C23-C40	51		mg/Kg	20	SB-4-2	C13-C22	24		mg/Kg	10
SB-4-2	C23-C40	42		mg/Kg	20	SB-6-0.5	4,4'-DDE	0.0028		mg/Kg	0.0020
SB-6-0.5	Chlordane	0.011		mg/Kg	0.010						



# A & R Laboratories, Inc.

1650 S. GROVE AVE., SUITE C

ONTARIO, CA 91761

951-779-0310

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FAX 951-779-0344

office@arlaboratories.com

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LA City#	10261
ELAP#s	2789
	2790
	2122

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FOOD · COSMETICS · WATER · SOIL · SOIL VAPOR · WASTES

## CERTIFICATE OF ANALYSIS

2009-00227

LOR GEOTECHNICAL GROUP, INC.  
MATHEW HUNT  
6121 QUAIL VALLEY COURT  
RIVERSIDE, CA 92507

Date Reported 10/02/20  
Date Received 09/25/20  
Invoice No. 89865  
Cust # 1422  
Permit Number  
Customer P.O.

**Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336**

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 <b>SB-1-0.5</b>					Date & Time Sampled:		09/25/20 @ 10:44	
Sample Matrix: <b>Soil</b>								
Metals	SEE ATTACHED			EPA 6020	1.0		10/02/20	CEL
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		10/01/20	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	10/01/20	KZ
[TPH Gasoline (C4-C12)]								
Closed System P&T TPHg Soil	Complete			EPA 5035	1.0		09/28/20	JEN
C4-C12	<0.20		mg/Kg	LUFT GC/MS	1.0	0.20	09/28/20	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		09/29/20	SR
C13-C22	<10		mg/Kg	EPA 8015M	1.0	10	09/29/20	SR
C23-C40	<20		mg/Kg	EPA 8015M	1.0	20	09/29/20	SR
[Surrogate]								
o-Terphenyl (OTP)	67		%REC	EPA 8015M		50-150	09/29/20	SR
[VOCs by GCMS]								
Closed System P&T VOC Soil	Complete			EPA 5035	1.0		09/28/20	JEN
Acetone	<0.10		mg/Kg	EPA 8260B	1.0	0.10	09/28/20	JEN
t-Amyl Methyl Ether (TAME)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Benzene	<0.0040		mg/Kg	EPA 8260B	1.0	0.0040	09/28/20	JEN
Bromobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromodichloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromoform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
t-Butanol (TBA)	<0.0625		mg/Kg	EPA 8260B	1.0	0.0625	09/28/20	JEN
2-Butanone (MEK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
n-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
sec-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
tert-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Carbon Disulfide	<0.010		mg/Kg	EPA 8260B	1.0	0.010	09/28/20	JEN
Carbon Tetrachloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN

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## CERTIFICATE OF ANALYSIS

2009-00227

Date Reported 10/02/20

Date Received 09/25/20

Invoice No. 89865

Cust # 1422

Permit Number

Customer P.O.

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 <b>SB-1-0.5</b>					Date & Time Sampled:		09/25/20 @ 10:44	
Sample Matrix: <b>Soil</b>								
.....continued								
Chloroform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Dibromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dibromoethane (EDB)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dibromo-3-Chloropropane	<0.010		mg/Kg	EPA 8260B	1.0	0.010	09/28/20	JEN
Dibromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,4-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Dichlorodifluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
cis-1,2-Dichloroethene	<0.0020		mg/Kg	EPA 8260B	1.0	0.0020	09/28/20	JEN
trans-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
cis-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
trans-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Diisopropyl Ether (DiPE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Ethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Ethyl-t-Butyl Ether (EtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Hexachlorobutadiene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2-Hexanone	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
Isopropylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Isopropyltoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Methylene Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN

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## CERTIFICATE OF ANALYSIS

2009-00227

LOR GEOTECHNICAL GROUP, INC.  
 MATHEW HUNT  
 6121 QUAIL VALLEY COURT  
 RIVERSIDE, CA 92507

Date Reported 10/02/20  
 Date Received 09/25/20  
 Invoice No. 89865  
 Cust # 1422  
 Permit Number  
 Customer P.O.

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 <b>SB-1-0.5</b>					Date & Time Sampled:		09/25/20 @ 10:44	
Sample Matrix: <b>Soil</b>								
.....continued								
4-Methyl-2-Pentanone (MIBK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
Methyl-t-butyl Ether (MtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Naphthalene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
n-Propylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Styrene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,1,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,2,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Tetrachloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Toluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,3-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,4-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,1-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,2-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,3-Trichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichlorofluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichlorotrifluoroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,4-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3,5-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Vinyl Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
m,p-Xylenes	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
o-Xylene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
[VOC Surrogates]								
Dibromofluoromethane	102		%REC	EPA 8260B		70-130	09/28/20	JEN
Toluene-D8	99		%REC	EPA 8260B		70-130	09/28/20	JEN
Bromofluorobenzene	88		%REC	EPA 8260B		70-130	09/28/20	JEN
Sample: 002 <b>SB-1-1</b>					Date & Time Sampled:		09/25/20 @ 10:45	
Sample Matrix: <b>Soil</b>								
Metals	SEE ATTACHED			EPA 6020	1.0		10/02/20	CEL
[Pesticides]								



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Cust # 1422

Permit Number

Customer P.O.

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 002 <b>SB-1-1</b>					Date & Time Sampled:		09/25/20 @ 10:45	
Sample Matrix: <b>Soil</b>								
.....continued								
Ultrasonic Extraction	Complete			EPA 3550	1.0		09/29/20	SR
Aldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
alpha-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
beta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
delta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
gamma-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	09/29/20	SR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
4,4'-DDE	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endosulfan I	<0.00020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endrin ketone	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Heptachlor	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Heptachlor Epoxide	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	09/29/20	SR
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	09/29/20	SR
[Surrogates]								
Tetrachloro-m-xylene	136		%REC	EPA 8081A/8082		50-150	09/29/20	SR
Decachlorobiphenyl	128		%REC	EPA 8081A/8082		50-150	09/29/20	SR
Sample: 003 <b>SB-2-0.5</b>					Date & Time Sampled:		09/25/20 @ 9:45	
Sample Matrix: <b>Soil</b>								
Metals	SEE ATTACHED			EPA 6020	1.0		10/02/20	CEL
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		10/01/20	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	10/01/20	KZ

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LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

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Customer P.O.

**Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336**

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 003 <b>SB-2-0.5</b>							Date & Time Sampled: 09/25/20 @ 9:45	
Sample Matrix: <b>Soil</b>								
.....continued								
[TPH Gasoline (C4-C12)]								
Closed System P&T TPHg Soil	Complete			EPA 5035	1.0		09/28/20	JEN
C4-C12	<0.20		mg/Kg	LUFT GC/MS	1.0	0.20	09/28/20	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		09/29/20	SR
C13-C22	<10		mg/Kg	EPA 8015M	1.0	10	09/29/20	SR
C23-C40	<20		mg/Kg	EPA 8015M	1.0	20	09/29/20	SR
[Surrogate]								
o-Terphenyl (OTP)	85		%REC	EPA 8015M		50-150	09/29/20	SR
[VOCs by GCMS]								
Closed System P&T VOC Soil	Complete			EPA 5035	1.0		09/28/20	JEN
Acetone	<0.10		mg/Kg	EPA 8260B	1.0	0.10	09/28/20	JEN
t-Amyl Methyl Ether (TAME)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Benzene	<0.0040		mg/Kg	EPA 8260B	1.0	0.0040	09/28/20	JEN
Bromobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromodichloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromoform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
t-Butanol (TBA)	<0.0625		mg/Kg	EPA 8260B	1.0	0.0625	09/28/20	JEN
2-Butanone (MEK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
n-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
sec-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
tert-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Carbon Disulfide	<0.010		mg/Kg	EPA 8260B	1.0	0.010	09/28/20	JEN
Carbon Tetrachloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloroform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN

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MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 003 <b>SB-2-0.5</b>							Date & Time Sampled: 09/25/20 @ 9:45	
Sample Matrix: <b>Soil</b>								
.....continued								
4-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Dibromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dibromoethane (EDB)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dibromo-3-Chloropropane	<0.010		mg/Kg	EPA 8260B	1.0	0.010	09/28/20	JEN
Dibromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,4-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Dichlorodifluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
cis-1,2-Dichloroethene	<0.0020		mg/Kg	EPA 8260B	1.0	0.0020	09/28/20	JEN
trans-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
cis-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
trans-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Diisopropyl Ether (DiPE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Ethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Ethyl-t-Butyl Ether (EtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Hexachlorobutadiene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2-Hexanone	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
Isopropylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Isopropyltoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Methylene Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Methyl-2-Pentanone (MIBK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
Methyl-t-butyl Ether (MtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Naphthalene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN

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## CERTIFICATE OF ANALYSIS

2009-00227

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/02/20

Date Received 09/25/20

Invoice No. 89865

Cust # 1422

Permit Number

Customer P.O.

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 003 SB-2-0.5					Date & Time Sampled:		09/25/20 @	9:45
Sample Matrix: Soil								
.....continued								
n-Propylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Styrene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,1,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,2,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Tetrachloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Toluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,3-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,4-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,1-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,2-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,3-Trichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichlorofluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichlorotrifluoroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,4-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3,5-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Vinyl Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
m,p-Xylenes	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
o-Xylene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
[VOC Surrogates]								
Dibromofluoromethane	101		%REC	EPA 8260B		70-130	09/28/20	JEN
Toluene-D8	95		%REC	EPA 8260B		70-130	09/28/20	JEN
Bromofluorobenzene	88		%REC	EPA 8260B		70-130	09/28/20	JEN
Sample: 004 SB-2-1					Date & Time Sampled:		09/25/20 @	9:46
Sample Matrix: Soil								
Metals	SEE ATTACHED			EPA 6020	1.0		10/02/20	CEL
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		09/29/20	SR
Aldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
alpha-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR

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## CERTIFICATE OF ANALYSIS

2009-00227

LOR GEOTECHNICAL GROUP, INC.  
 MATHEW HUNT  
 6121 QUAIL VALLEY COURT  
 RIVERSIDE, CA 92507

Date Reported 10/02/20  
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 Invoice No. 89865  
 Cust # 1422  
 Permit Number  
 Customer P.O.

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 004 <b>SB-2-1</b>					Date & Time Sampled:		09/25/20 @ 9:46	
Sample Matrix: <b>Soil</b>								
.....continued								
beta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
delta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
gamma-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Chlordane	<b>0.011</b>		mg/Kg	EPA 8081A	1.0	0.010	09/29/20	SR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
4,4'-DDE	<b>0.0026</b>		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endosulfan I	<0.00020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endrin ketone	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Heptachlor	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Heptachlor Epoxide	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	09/29/20	SR
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	09/29/20	SR
[Surrogates]								
Tetrachloro-m-xylene	97		%REC	EPA 8081A/8082		50-150	09/29/20	SR
Decachlorobiphenyl	117		%REC	EPA 8081A/8082		50-150	09/29/20	SR
Sample: 005 <b>SB-3-0.5</b>					Date & Time Sampled:		09/25/20 @ 14:06	
Sample Matrix: <b>Soil</b>								
Metals	SEE ATTACHED			EPA 6020	1.0		10/02/20	CEL
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		10/01/20	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	10/01/20	KZ
[TPH Gasoline (C4-C12)]								
Closed System P&T TPHg Soil	Complete			EPA 5035	1.0		09/28/20	JEN
C4-C12	<0.20		mg/Kg	LUFT GC/MS	1.0	0.20	09/28/20	JEN

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Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 005 <b>SB-3-0.5</b>							Date & Time Sampled: 09/25/20 @ 14:06	
Sample Matrix: <b>Soil</b>								
.....continued								
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		09/29/20	SR
C13-C22	<b>11</b>		mg/Kg	EPA 8015M	1.0	10	09/29/20	SR
C23-C40	<20		mg/Kg	EPA 8015M	1.0	20	09/29/20	SR
[Surrogate]								
o-Terphenyl (OTP)	64		%REC	EPA 8015M		50-150	09/29/20	SR
[VOCs by GCMS]								
Closed System P&T VOC Soil	Complete			EPA 5035	1.0		09/28/20	JEN
Acetone	<0.10		mg/Kg	EPA 8260B	1.0	0.10	09/28/20	JEN
t-Amyl Methyl Ether (TAME)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Benzene	<0.0040		mg/Kg	EPA 8260B	1.0	0.0040	09/28/20	JEN
Bromobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromodichloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromoform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
t-Butanol (TBA)	<0.0625		mg/Kg	EPA 8260B	1.0	0.0625	09/28/20	JEN
2-Butanone (MEK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
n-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
sec-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
tert-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Carbon Disulfide	<0.010		mg/Kg	EPA 8260B	1.0	0.010	09/28/20	JEN
Carbon Tetrachloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloroform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Dibromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dibromoethane (EDB)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN

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LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 005 <b>SB-3-0.5</b>					Date & Time Sampled:		09/25/20 @ 14:06	
Sample Matrix: <b>Soil</b>								
.....continued								
1,2-Dibromo-3-Chloropropane	<0.010		mg/Kg	EPA 8260B	1.0	0.010	09/28/20	JEN
Dibromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,4-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Dichlorodifluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
cis-1,2-Dichloroethene	<0.0020		mg/Kg	EPA 8260B	1.0	0.0020	09/28/20	JEN
trans-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
cis-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
trans-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Diisopropyl Ether (DIPE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Ethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Ethyl-t-Butyl Ether (EtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Hexachlorobutadiene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2-Hexanone	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
Isopropylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Isopropyltoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Methylene Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Methyl-2-Pentanone (MIBK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
Methyl-t-butyl Ether (MtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Naphthalene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
n-Propylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Styrene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,1,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN

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Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 005 <b>SB-3-0.5</b>					Date & Time Sampled:		09/25/20 @ 14:06	
Sample Matrix: <b>Soil</b>								
.....continued								
1,1,2,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Tetrachloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Toluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,3-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,4-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,1-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,2-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,3-Trichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichlorofluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichlorotrifluoroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,4-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3,5-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Vinyl Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
m,p-Xylenes	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
o-Xylene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
[VOC Surrogates]								
Dibromofluoromethane	103		%REC	EPA 8260B		70-130	09/28/20	JEN
Toluene-D8	100		%REC	EPA 8260B		70-130	09/28/20	JEN
Bromofluorobenzene	92		%REC	EPA 8260B		70-130	09/28/20	JEN
Sample: 006 <b>SB-3-1.5</b>					Date & Time Sampled:		09/25/20 @ 14:07	
Sample Matrix: <b>Soil</b>								
Metals	SEE ATTACHED			EPA 6020	1.0		10/02/20	CEL
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		10/01/20	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	10/01/20	KZ
[TPH Gasoline (C4-C12)]								
Closed System P&T TPHg Soil	Complete			EPA 5035	1.0		09/28/20	JEN
C4-C12	<0.20		mg/Kg	LUFT GC/MS	1.0	0.20	09/28/20	JEN
[Extractable Hydrocarbons]								





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## CERTIFICATE OF ANALYSIS

2009-00227

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/02/20

Date Received 09/25/20

Invoice No. 89865

Cust # 1422

Permit Number

Customer P.O.

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 006 <b>SB-3-1.5</b>					Date & Time Sampled:		09/25/20 @ 14:07	
Sample Matrix: <b>Soil</b>								
.....continued								
Extraction	Complete			EPA 3550B	1.0		09/29/20	SR
C13-C22	<10		mg/Kg	EPA 8015M	1.0	10	09/29/20	SR
C23-C40	<20		mg/Kg	EPA 8015M	1.0	20	09/29/20	SR
[Surrogate]								
o-Terphenyl (OTP)	77		%REC	EPA 8015M		50-150	09/29/20	SR
[VOCs by GCMS]								
Closed System P&T VOC Soil	Complete			EPA 5035	1.0		09/28/20	JEN
Acetone	<0.10		mg/Kg	EPA 8260B	1.0	0.10	09/28/20	JEN
t-Amyl Methyl Ether (TAME)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Benzene	<0.0040		mg/Kg	EPA 8260B	1.0	0.0040	09/28/20	JEN
Bromobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromodichloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromoform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
t-Butanol (TBA)	<0.0625		mg/Kg	EPA 8260B	1.0	0.0625	09/28/20	JEN
2-Butanone (MEK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
n-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
sec-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
tert-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Carbon Disulfide	<0.010		mg/Kg	EPA 8260B	1.0	0.010	09/28/20	JEN
Carbon Tetrachloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloroform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Dibromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dibromoethane (EDB)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dibromo-3-Chloropropane	<0.010		mg/Kg	EPA 8260B	1.0	0.010	09/28/20	JEN

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Customer P.O.

**Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336**

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 006 <b>SB-3-1.5</b>					Date & Time Sampled:		09/25/20 @ 14:07	
Sample Matrix: <b>Soil</b>								
.....continued								
Dibromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,4-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Dichlorodifluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
cis-1,2-Dichloroethene	<0.0020		mg/Kg	EPA 8260B	1.0	0.0020	09/28/20	JEN
trans-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
cis-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
trans-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Diisopropyl Ether (DIPE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Ethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Ethyl-t-Butyl Ether (EtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Hexachlorobutadiene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2-Hexanone	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
Isopropylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Isopropyltoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Methylene Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Methyl-2-Pentanone (MIBK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
Methyl-t-butyl Ether (MtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Naphthalene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
n-Propylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Styrene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,1,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,2,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN

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Customer P.O.

**Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336**

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 006 <b>SB-3-1.5</b>					Date & Time Sampled:		09/25/20 @ 14:07	
Sample Matrix: <b>Soil</b>								
.....continued								
Tetrachloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Toluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,3-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,4-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,1-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,2-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,3-Trichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichlorofluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichlorotrifluoroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,4-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3,5-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Vinyl Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
m,p-Xylenes	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
o-Xylene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
[VOC Surrogates]								
Dibromofluoromethane	99		%REC	EPA 8260B		70-130	09/28/20	JEN
Toluene-D8	97		%REC	EPA 8260B		70-130	09/28/20	JEN
Bromofluorobenzene	90		%REC	EPA 8260B		70-130	09/28/20	JEN
Sample: 007 <b>SB-3-2.5</b>					Date & Time Sampled:		09/25/20 @ 14:08	
Sample Matrix: <b>Soil</b>								
Metals	SEE ATTACHED			EPA 6020	1.0		10/02/20	CEL
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		09/29/20	SR
Aldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
alpha-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
beta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
delta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
gamma-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Chlordane	<0.010		ma/Ka	EPA 8081A	1.0	0.010	09/29/20	SR

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LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

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Invoice No. 89865

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Permit Number

Customer P.O.

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 007 <b>SB-3-2.5</b>					Date & Time Sampled:		09/25/20 @ 14:08	
Sample Matrix: <b>Soil</b>								
.....continued								
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
4,4'-DDE	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endosulfan I	<0.00020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endrin ketone	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Heptachlor	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Heptachlor Epoxide	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	09/29/20	SR
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	09/29/20	SR
[Surrogates]								
Tetrachloro-m-xylene	145		%REC	EPA 8081A/8082		50-150	09/29/20	SR
Decachlorobiphenyl	149		%REC	EPA 8081A/8082		50-150	09/29/20	SR
Sample: 008 <b>SB-4-0.5</b>					Date & Time Sampled:		09/25/20 @ 13:25	
Sample Matrix: <b>Soil</b>								
Metals	SEE ATTACHED			EPA 6020	1.0		10/02/20	CEL
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		10/01/20	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	10/01/20	KZ
[TPH Gasoline (C4-C12)]								
Closed System P&T TPHg Soil	Complete			EPA 5035	1.0		09/28/20	JEN
C4-C12	<0.20		mg/Kg	LUFT GC/MS	1.0	0.20	09/28/20	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		09/29/20	SR
C13-C22	<b>37</b>		mg/Kg	EPA 8015M	1.0	10	09/29/20	SR
C23-C40	<b>51</b>		mg/Kg	EPA 8015M	1.0	20	09/29/20	SR

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Customer P.O.

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 008 <b>SB-4-0.5</b>							Date & Time Sampled: 09/25/20 @ 13:25	
Sample Matrix: <b>Soil</b>								
.....continued								
[Surrogate]								
o-Terphenyl (OTP)	67		%REC	EPA 8015M		50-150	09/29/20	SR
[VOCs by GCMS]								
Closed System P&T VOC Soil	Complete			EPA 5035	1.0		09/28/20	JEN
Acetone	<0.10		mg/Kg	EPA 8260B	1.0	0.10	09/28/20	JEN
t-Amyl Methyl Ether (TAME)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Benzene	<0.0040		mg/Kg	EPA 8260B	1.0	0.0040	09/28/20	JEN
Bromobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromodichloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromoform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
t-Butanol (TBA)	<0.0625		mg/Kg	EPA 8260B	1.0	0.0625	09/28/20	JEN
2-Butanone (MEK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
n-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
sec-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
tert-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Carbon Disulfide	<0.010		mg/Kg	EPA 8260B	1.0	0.010	09/28/20	JEN
Carbon Tetrachloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloroform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Dibromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dibromoethane (EDB)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dibromo-3-Chloropropane	<0.010		mg/Kg	EPA 8260B	1.0	0.010	09/28/20	JEN
Dibromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN

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## CERTIFICATE OF ANALYSIS

2009-00227

Date Reported 10/02/20

Date Received 09/25/20

Invoice No. 89865

Cust # 1422

Permit Number

Customer P.O.

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 008 <b>SB-4-0.5</b>					Date & Time Sampled:		09/25/20 @ 13:25	
Sample Matrix: <b>Soil</b>								
.....continued								
1,4-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Dichlorodifluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
cis-1,2-Dichloroethene	<0.0020		mg/Kg	EPA 8260B	1.0	0.0020	09/28/20	JEN
trans-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
cis-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
trans-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Diisopropyl Ether (DiPE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Ethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Ethyl-t-Butyl Ether (EtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Hexachlorobutadiene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2-Hexanone	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
Isopropylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Isopropyltoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Methylene Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Methyl-2-Pentanone (MIBK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
Methyl-t-butyl Ether (MtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Naphthalene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
n-Propylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Styrene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,1,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,2,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Tetrachloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Toluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,3-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN

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## CERTIFICATE OF ANALYSIS

2009-00227

LOR GEOTECHNICAL GROUP, INC.  
 MATHEW HUNT  
 6121 QUAIL VALLEY COURT  
 RIVERSIDE, CA 92507

Date Reported 10/02/20  
 Date Received 09/25/20  
 Invoice No. 89865  
 Cust # 1422  
 Permit Number  
 Customer P.O.

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 008 <b>SB-4-0.5</b>					Date & Time Sampled:		09/25/20 @ 13:25	
Sample Matrix: <b>Soil</b>								
.....continued								
1,2,4-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,1-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,2-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,3-Trichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichlorofluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichlorotrifluoroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,4-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3,5-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Vinyl Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
m,p-Xylenes	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
o-Xylene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
[VOC Surrogates]								
Dibromofluoromethane	100		%REC	EPA 8260B		70-130	09/28/20	JEN
Toluene-D8	96		%REC	EPA 8260B		70-130	09/28/20	JEN
Bromofluorobenzene	86		%REC	EPA 8260B		70-130	09/28/20	JEN
Sample: 009 <b>SB-4-2</b>					Date & Time Sampled:		09/25/20 @ 13:26	
Sample Matrix: <b>Soil</b>								
Metals	SEE ATTACHED			EPA 6020	1.0		10/02/20	CEL
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		10/01/20	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	10/01/20	KZ
[TPH Gasoline (C4-C12)]								
Closed System P&T TPHg Soil	Complete			EPA 5035	1.0		09/28/20	JEN
C4-C12	<0.20		mg/Kg	LUFT GC/MS	1.0	0.20	09/28/20	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		09/29/20	SR
C13-C22	24		mg/Kg	EPA 8015M	1.0	10	09/29/20	SR
C23-C40	42		mg/Kg	EPA 8015M	1.0	20	09/29/20	SR
[Surrogate]								



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Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 009 <b>SB-4-2</b>					Date & Time Sampled:		09/25/20 @ 13:26	
Sample Matrix: <b>Soil</b>								
.....continued								
o-Terphenyl (OTP)	65		%REC	EPA 8015M		50-150	09/29/20	SR
[VOCs by GCMS]								
Closed System P&T VOC Soil	Complete			EPA 5035	1.0		09/28/20	JEN
Acetone	<0.10		mg/Kg	EPA 8260B	1.0	0.10	09/28/20	JEN
t-Amyl Methyl Ether (TAME)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Benzene	<0.0040		mg/Kg	EPA 8260B	1.0	0.0040	09/28/20	JEN
Bromobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromodichloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromoform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
t-Butanol (TBA)	<0.0625		mg/Kg	EPA 8260B	1.0	0.0625	09/28/20	JEN
2-Butanone (MEK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
n-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
sec-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
tert-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Carbon Disulfide	<0.010		mg/Kg	EPA 8260B	1.0	0.010	09/28/20	JEN
Carbon Tetrachloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloroform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Dibromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dibromoethane (EDB)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dibromo-3-Chloropropane	<0.010		mg/Kg	EPA 8260B	1.0	0.010	09/28/20	JEN
Dibromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,4-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN

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Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 009 <b>SB-4-2</b>					Date & Time Sampled:		09/25/20 @ 13:26	
Sample Matrix: <b>Soil</b>								
.....continued								
Dichlorodifluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
cis-1,2-Dichloroethene	<0.0020		mg/Kg	EPA 8260B	1.0	0.0020	09/28/20	JEN
trans-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
cis-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
trans-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Diisopropyl Ether (DIPE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Ethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Ethyl-t-Butyl Ether (EtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Hexachlorobutadiene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2-Hexanone	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
Isopropylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Isopropyltoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Methylene Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Methyl-2-Pentanone (MIBK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
Methyl-t-butyl Ether (MtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Naphthalene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
n-Propylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Styrene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,1,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,2,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Tetrachloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Toluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,3-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,4-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN

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Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 009 <b>SB-4-2</b>					Date & Time Sampled:		09/25/20 @ 13:26	
Sample Matrix: <b>Soil</b>								
.....continued								
1,1,1-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,2-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,3-Trichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichlorofluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichlorotrifluoroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,4-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3,5-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Vinyl Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
m,p-Xylenes	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
o-Xylene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
[VOC Surrogates]								
Dibromofluoromethane	100		%REC	EPA 8260B		70-130	09/28/20	JEN
Toluene-D8	95		%REC	EPA 8260B		70-130	09/28/20	JEN
Bromofluorobenzene	90		%REC	EPA 8260B		70-130	09/28/20	JEN
Sample: 010 <b>SB-4-3.5</b>					Date & Time Sampled:		09/25/20 @ 13:27	
Sample Matrix: <b>Soil</b>								
Metals	SEE ATTACHED			EPA 6020	1.0		10/02/20	CEL
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		09/30/20	SR
Aldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
alpha-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
beta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
delta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
gamma-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	09/30/20	SR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
4,4'-DDE	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR

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## CERTIFICATE OF ANALYSIS

2009-00227

Date Reported 10/02/20

Date Received 09/25/20

Invoice No. 89865

Cust # 1422

Permit Number

Customer P.O.

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 010 <b>SB-4-3.5</b>					Date & Time Sampled:		09/25/20 @ 13:27	
Sample Matrix: <b>Soil</b>								
.....continued								
Endosulfan I	<0.00020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Endrin ketone	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Heptachlor	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Heptachlor Epoxide	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	09/30/20	SR
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	09/30/20	SR
[Surrogates]								
Tetrachloro-m-xylene	144		%REC	EPA 8081A/8082		50-150	09/30/20	SR
Decachlorobiphenyl	146		%REC	EPA 8081A/8082		50-150	09/30/20	SR
Sample: 011 <b>SB-5-0.5</b>					Date & Time Sampled:		09/25/20 @ 12:28	
Sample Matrix: <b>Soil</b>								
Metals	SEE ATTACHED			EPA 6020	1.0		10/02/20	CEL
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		10/01/20	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	10/01/20	KZ
[TPH Gasoline (C4-C12)]								
Closed System P&T TPHg Soil	Complete			EPA 5035	1.0		09/28/20	JEN
C4-C12	<0.20		mg/Kg	LUFT GC/MS	1.0	0.20	09/28/20	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		09/29/20	SR
C13-C22	<10		mg/Kg	EPA 8015M	1.0	10	09/29/20	SR
C23-C40	<20		mg/Kg	EPA 8015M	1.0	20	09/29/20	SR
[Surrogate]								
o-Terphenyl (OTP)	78		%REC	EPA 8015M		50-150	09/29/20	SR
[VOCs by GCMS]								
Closed System P&T VOC Soil	Complete			EPA 5035	1.0		09/28/20	JEN

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MATHEW HUNT

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Cust # 1422

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Customer P.O.

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 011 <b>SB-5-0.5</b>					Date & Time Sampled:		09/25/20 @ 12:28	
Sample Matrix: <b>Soil</b>								
.....continued								
Acetone	<0.10		mg/Kg	EPA 8260B	1.0	0.10	09/28/20	JEN
t-Amyl Methyl Ether (TAME)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Benzene	<0.0040		mg/Kg	EPA 8260B	1.0	0.0040	09/28/20	JEN
Bromobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromodichloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromoform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
t-Butanol (TBA)	<0.0625		mg/Kg	EPA 8260B	1.0	0.0625	09/28/20	JEN
2-Butanone (MEK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
n-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
sec-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
tert-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Carbon Disulfide	<0.010		mg/Kg	EPA 8260B	1.0	0.010	09/28/20	JEN
Carbon Tetrachloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloroform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Dibromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dibromoethane (EDB)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dibromo-3-Chloropropane	<0.010		mg/Kg	EPA 8260B	1.0	0.010	09/28/20	JEN
Dibromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,4-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Dichlorodifluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN

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## CERTIFICATE OF ANALYSIS

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Date Reported 10/02/20

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Invoice No. 89865

Cust # 1422

Permit Number

Customer P.O.

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 011 <b>SB-5-0.5</b>					Date & Time Sampled:		09/25/20 @ 12:28	
Sample Matrix: <b>Soil</b>								
.....continued								
1,1-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
cis-1,2-Dichloroethene	<0.0020		mg/Kg	EPA 8260B	1.0	0.0020	09/28/20	JEN
trans-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
cis-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
trans-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Diisopropyl Ether (DiPE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Ethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Ethyl-t-Butyl Ether (EtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Hexachlorobutadiene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2-Hexanone	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
Isopropylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Isopropyltoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Methylene Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Methyl-2-Pentanone (MIBK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
Methyl-t-butyl Ether (MtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Naphthalene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
n-Propylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Styrene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,1,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,1,2,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Tetrachloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Toluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,3-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,4-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,1-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,2-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN

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## CERTIFICATE OF ANALYSIS

2009-00227

LOR GEOTECHNICAL GROUP, INC.  
 MATHEW HUNT  
 6121 QUAIL VALLEY COURT  
 RIVERSIDE, CA 92507

Date Reported 10/02/20  
 Date Received 09/25/20  
 Invoice No. 89865  
 Cust # 1422  
 Permit Number  
 Customer P.O.

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 011 <b>SB-5-0.5</b>					Date & Time Sampled:		09/25/20 @ 12:28	
Sample Matrix: <b>Soil</b>								
.....continued								
1,2,3-Trichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichlorofluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichlorotrifluoroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,4-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3,5-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Vinyl Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
m,p-Xylenes	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
o-Xylene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
[VOC Surrogates]								
Dibromofluoromethane	99		%REC	EPA 8260B		70-130	09/28/20	JEN
Toluene-D8	97		%REC	EPA 8260B		70-130	09/28/20	JEN
Bromofluorobenzene	86		%REC	EPA 8260B		70-130	09/28/20	JEN
Sample: 012 <b>SB-5-1.5</b>					Date & Time Sampled:		09/25/20 @ 12:29	
Sample Matrix: <b>Soil</b>								
Metals	SEE ATTACHED			EPA 6020	1.0		10/02/20	CEL
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		10/01/20	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	10/01/20	KZ
[TPH Gasoline (C4-C12)]								
Closed System P&T TPHg Soil	Complete			EPA 5035	1.0		09/28/20	JEN
C4-C12	<0.20		mg/Kg	LUFT GC/MS	1.0	0.20	09/28/20	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		09/29/20	SR
C13-C22	<10		mg/Kg	EPA 8015M	1.0	10	09/29/20	SR
C23-C40	<20		mg/Kg	EPA 8015M	1.0	20	09/29/20	SR
[Surrogate]								
o-Terphenyl (OTP)	78		%REC	EPA 8015M		50-150	09/29/20	SR
[VOCs by GCMS]								
Closed System P&T VOC Soil	Complete			EPA 5035	1.0		09/28/20	JEN
Acetone	<0.10		mg/Kg	EPA 8260B	1.0	0.10	09/28/20	JEN

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MATHEW HUNT

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RIVERSIDE, CA 92507

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 012 <b>SB-5-1.5</b>					Date & Time Sampled:		09/25/20 @ 12:29	
Sample Matrix: <b>Soil</b>								
.....continued								
t-Amyl Methyl Ether (TAME)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Benzene	<0.0040		mg/Kg	EPA 8260B	1.0	0.0040	09/28/20	JEN
Bromobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromodichloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromoform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
t-Butanol (TBA)	<0.0625		mg/Kg	EPA 8260B	1.0	0.0625	09/28/20	JEN
2-Butanone (MEK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
n-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
sec-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
tert-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Carbon Disulfide	<0.010		mg/Kg	EPA 8260B	1.0	0.010	09/28/20	JEN
Carbon Tetrachloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloroform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Dibromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dibromoethane (EDB)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dibromo-3-Chloropropane	<0.010		mg/Kg	EPA 8260B	1.0	0.010	09/28/20	JEN
Dibromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,4-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Dichlorodifluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN

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## CERTIFICATE OF ANALYSIS

2009-00227

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/02/20

Date Received 09/25/20

Invoice No. 89865

Cust # 1422

Permit Number

Customer P.O.

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 012 <b>SB-5-1.5</b>					Date & Time Sampled:		09/25/20 @ 12:29	
Sample Matrix: <b>Soil</b>								
.....continued								
cis-1,2-Dichloroethene	<0.0020		mg/Kg	EPA 8260B	1.0	0.0020	09/28/20	JEN
trans-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
cis-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
trans-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Diisopropyl Ether (DIPE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Ethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Ethyl-t-Butyl Ether (EtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Hexachlorobutadiene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2-Hexanone	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
Isopropylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Isopropyltoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Methylene Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Methyl-2-Pentanone (MIBK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
Methyl-t-butyl Ether (MtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Naphthalene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
n-Propylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Styrene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,1,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,2,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Tetrachloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Toluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,3-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,4-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,1-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,2-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,3-Trichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN

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## CERTIFICATE OF ANALYSIS

2009-00227

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/02/20

Date Received 09/25/20

Invoice No. 89865

Cust # 1422

Permit Number

Customer P.O.

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 012 SB-5-1.5					Date & Time Sampled:		09/25/20 @ 12:29	
Sample Matrix: Soil								
.....continued								
Trichlorofluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichlorotrifluoroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,4-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3,5-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Vinyl Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
m,p-Xylenes	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
o-Xylene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
[VOC Surrogates]								
Dibromofluoromethane	98		%REC	EPA 8260B		70-130	09/28/20	JEN
Toluene-D8	95		%REC	EPA 8260B		70-130	09/28/20	JEN
Bromofluorobenzene	89		%REC	EPA 8260B		70-130	09/28/20	JEN
Sample: 013 SB-5-2.5					Date & Time Sampled:		09/25/20 @ 12:30	
Sample Matrix: Soil								
Metals	SEE ATTACHED			EPA 6020	1.0		10/02/20	CEL
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		09/29/20	SR
Aldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
alpha-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
beta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
delta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
gamma-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	09/29/20	SR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
4,4'-DDE	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endosulfan I	<0.00020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR

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## CERTIFICATE OF ANALYSIS

2009-00227

Date Reported 10/02/20

Date Received 09/25/20

Invoice No. 89865

Cust # 1422

Permit Number

Customer P.O.

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 013 <b>SB-5-2.5</b>					Date & Time Sampled:		09/25/20 @ 12:30	
Sample Matrix: <b>Soil</b>								
.....continued								
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endrin ketone	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Heptachlor	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Heptachlor Epoxide	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	09/29/20	SR
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	09/29/20	SR
[Surrogates]								
Tetrachloro-m-xylene	124		%REC	EPA 8081A/8082		50-150	09/29/20	SR
Decachlorobiphenyl	120		%REC	EPA 8081A/8082		50-150	09/29/20	SR
Sample: 014 <b>SB-6-0.5</b>					Date & Time Sampled:		09/25/20 @ 11:37	
Sample Matrix: <b>Soil</b>								
Metals	SEE ATTACHED			EPA 6020	1.0		10/02/20	CEL
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		09/30/20	SR
Aldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
alpha-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
beta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
delta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
gamma-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Chlordane	<b>0.011</b>		mg/Kg	EPA 8081A	1.0	0.010	09/30/20	SR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
4,4'-DDE	<b>0.0028</b>		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Endosulfan I	<0.00020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Endrin ketone	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR

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## CERTIFICATE OF ANALYSIS

2009-00227

**LOR GEOTECHNICAL GROUP, INC.**  
**MATHEW HUNT**  
**6121 QUAIL VALLEY COURT**  
**RIVERSIDE, CA 92507**

Date Reported 10/02/20  
 Date Received 09/25/20  
 Invoice No. 89865  
 Cust # 1422  
 Permit Number  
 Customer P.O.

**Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336**

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 014 <b>SB-6-0.5</b>					Date & Time Sampled:		09/25/20 @ 11:37	
Sample Matrix: <b>Soil</b>								
.....continued								
Heptachlor	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Heptachlor Epoxide	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/30/20	SR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	09/30/20	SR
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	09/30/20	SR
[Surrogates]								
Tetrachloro-m-xylene	129		%REC	EPA 8081A/8082		50-150	09/30/20	SR
Decachlorobiphenyl	127		%REC	EPA 8081A/8082		50-150	09/30/20	SR
Sample: 015 <b>SB-7-1</b>					Date & Time Sampled:		09/25/20 @ 9:04	
Sample Matrix: <b>Soil</b>								
Metals	SEE ATTACHED			EPA 6020	1.0		10/02/20	CEL
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		10/01/20	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	10/01/20	KZ
[TPH Gasoline (C4-C12)]								
Closed System P&T TPHg Soil	Complete			EPA 5035	1.0		09/28/20	JEN
C4-C12	<0.20		mg/Kg	LUFT GC/MS	1.0	0.20	09/28/20	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		09/29/20	SR
C13-C22	<10		mg/Kg	EPA 8015M	1.0	10	09/29/20	SR
C23-C40	<20		mg/Kg	EPA 8015M	1.0	20	09/29/20	SR
[Surrogate]								
o-Terphenyl (OTP)	79		%REC	EPA 8015M		50-150	09/29/20	SR
[VOCs by GCMS]								
Closed System P&T VOC Soil	Complete			EPA 5035	1.0		09/28/20	JEN
Acetone	<0.10		mg/Kg	EPA 8260B	1.0	0.10	09/28/20	JEN
t-Amyl Methyl Ether (TAME)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Benzene	<0.0040		mg/Kg	EPA 8260B	1.0	0.0040	09/28/20	JEN
Bromobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromodichloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN

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Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 015 <b>SB-7-1</b>					Date & Time Sampled:		09/25/20 @	9:04
Sample Matrix: <b>Soil</b>								
.....continued								
Bromoform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Bromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
t-Butanol (TBA)	<0.0625		mg/Kg	EPA 8260B	1.0	0.0625	09/28/20	JEN
2-Butanone (MEK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
n-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
sec-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
tert-Butylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Carbon Disulfide	<0.010		mg/Kg	EPA 8260B	1.0	0.010	09/28/20	JEN
Carbon Tetrachloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloroform	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Chloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Chlorotoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Dibromochloromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dibromoethane (EDB)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dibromo-3-Chloropropane	<0.010		mg/Kg	EPA 8260B	1.0	0.010	09/28/20	JEN
Dibromomethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,4-Dichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Dichlorodifluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
cis-1,2-Dichloroethene	<0.0020		mg/Kg	EPA 8260B	1.0	0.0020	09/28/20	JEN
trans-1,2-Dichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2,2-Dichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN

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## CERTIFICATE OF ANALYSIS

2009-00227

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/02/20

Date Received 09/25/20

Invoice No. 89865

Cust # 1422

Permit Number

Customer P.O.

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 015 <b>SB-7-1</b>					Date & Time Sampled:		09/25/20 @ 9:04	
Sample Matrix: <b>Soil</b>								
.....continued								
1,1-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
cis-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
trans-1,3-Dichloropropene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Diisopropyl Ether (DIPE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Ethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Ethyl-t-Butyl Ether (EtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Hexachlorobutadiene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
2-Hexanone	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
Isopropylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Isopropyltoluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Methylene Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
4-Methyl-2-Pentanone (MIBK)	<0.0313		mg/Kg	EPA 8260B	1.0	0.0313	09/28/20	JEN
Methyl-t-butyl Ether (MtBE)	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Naphthalene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
n-Propylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Styrene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,1,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,2,2-Tetrachloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Tetrachloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Toluene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,3-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,4-Trichlorobenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,1-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,1,2-Trichloroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichloroethene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,3-Trichloropropane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichlorofluoromethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Trichlorotrifluoroethane	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,2,4-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
1,3,5-Trimethylbenzene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
Vinyl Chloride	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN

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## CERTIFICATE OF ANALYSIS

2009-00227

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/02/20

Date Received 09/25/20

Invoice No. 89865

Cust # 1422

Permit Number

Customer P.O.

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 015 <b>SB-7-1</b>					Date & Time Sampled:		09/25/20 @	9:04
Sample Matrix: <b>Soil</b>								
.....continued								
m,p-Xylenes	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
o-Xylene	<0.0050		mg/Kg	EPA 8260B	1.0	0.0050	09/28/20	JEN
[VOC Surrogates]								
Dibromofluoromethane	91		%REC	EPA 8260B		70-130	09/28/20	JEN
Toluene-D8	96		%REC	EPA 8260B		70-130	09/28/20	JEN
Bromofluorobenzene	88		%REC	EPA 8260B		70-130	09/28/20	JEN
Sample: 016 <b>SB-7-1.5</b>					Date & Time Sampled:		09/25/20 @	9:05
Sample Matrix: <b>Soil</b>								
Metals	SEE ATTACHED			EPA 6020	1.0		10/02/20	CEL
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		09/29/20	SR
Aldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
alpha-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
beta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
delta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
gamma-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	09/29/20	SR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
4,4'-DDE	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endosulfan I	<0.00020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Endrin ketone	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Heptachlor	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Heptachlor Epoxide	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	09/29/20	SR
Methoxyvchlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	09/29/20	SR

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## CERTIFICATE OF ANALYSIS

2009-00227

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/02/20

Date Received 09/25/20

Invoice No. 89865

Cust # 1422

Permit Number

Customer P.O.

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK AVE. / 336

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 016 <b>SB-7-1.5</b>					Date & Time Sampled:		09/25/20 @	9:05
Sample Matrix: <b>Soil</b>								
.....continued								
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	09/29/20	SR
[Surrogates]								
Tetrachloro-m-xylene	145		%REC	EPA 8081A/8082		50-150	09/29/20	SR
Decachlorobiphenyl	127		%REC	EPA 8081A/8082		50-150	09/29/20	SR
Sample: 017 <b>SB-8-1.5</b>					Date & Time Sampled:		09/25/20 @	8:30
Sample Matrix: <b>Soil</b>								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		09/28/20	TLB
Boron	39.2		mg/Kg	EPA 6010B	1.0	1.00	09/28/20	TLB
Sample: 018 <b>SB-8-3</b>					Date & Time Sampled:		09/25/20 @	8:36
Sample Matrix: <b>Soil</b>								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		09/28/20	TLB
Boron	42.8		mg/Kg	EPA 6010B	1.0	1.00	09/28/20	TLB
Sample: 019 <b>SB-9-1.5</b>					Date & Time Sampled:		09/25/20 @	7:50
Sample Matrix: <b>Soil</b>								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		09/28/20	TLB
Boron	45.8		mg/Kg	EPA 6010B	1.0	1.00	09/28/20	TLB
Sample: 020 <b>SB-9-3</b>					Date & Time Sampled:		09/25/20 @	7:58
Sample Matrix: <b>Soil</b>								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		09/28/20	TLB
Boron	51.2		mg/Kg	EPA 6010B	1.0	1.00	09/28/20	TLB



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**Respectfully Submitted:**

*Ken Zheng*

Ken Zheng - Lab Director

### QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL.

B1 = BOD dilution water is over specifications . The reported result may be biased high.

D = Surrogate recoveries are not calculated due to sample dilution.

E = Estimated value; Value exceeds calibration level of instrument.

H = Analyte was prepared and/or analyzed outside of the analytical method holding time

I = Matrix Interference.

J = Analyte concentration detected between RL and MDL.

Q = One or more quality control criteria did not meet specifications. See Comments for further explanation.

S = Customer provided specification limit exceeded.

### ABBREVIATIONS

DF = Dilution Factor

RL = Reporting Limit, Adjusted by DF

MDL = Method Detection Limit, Adjusted by DF

Qual = Qualifier

Tech = Technician

*As regulatory limits change frequently, A & R Laboratories advises the recipient of this report to confirm such limits with the appropriate federal, state, or local authorities before acting in reliance on the regulatory limits provided.*

*For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.*



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## QUALITY CONTROL DATA REPORT

LOR GEOTECHNICAL GROUP, INC.  
 RIVERSIDE, CA 92507

2009-00227

Date Reported 10/02/2020  
 Date Received 09/25/2020  
 Date Sampled 09/25/2020  
 Invoice No. 89865  
 Customer # 1422  
 Customer P.O.

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK  
 AVE. / 33616.21

### Method # EPA 6010B

QC Reference # 91754 Date Analyzed: 9/28/2020 Technician: TLB

Samples 017 018 019 020

#### Results

	LCS %REC	LCS %DUP	LCS %RPD	SPIKE %REC	SPIKE %DUP	SPIKE %RPD		LCS %REC	LCS %RPD	SPIKE %RPD
Boron	99	102	3.2	100	101	0.4		75 - 125	0 - 20	0 - 20
Lead	98	99	0.4	71	71	0.5		75 - 125	0 - 20	0 - 20

### Method # EPA 7471A

QC Reference # 91879 Date Analyzed: 10/1/2020 Technician: KZ

Samples 001 003 005 006 008 009 011 012 015

#### Results

	LCS %REC	LCS %DUP	LCS %RPD	SPIKE %REC	SPIKE %DUP	SPIKE %RPD		LCS %REC	LCS %RPD	SPIKE %RPD
Mercury	88	85	3	94	91	3		75 - 125	0 - 25	0 - 25

### Method # EPA 8015M

QC Reference # 91813 Date Analyzed: 9/29/2020 Technician: SR

Samples 001 003 005 006 008 009 011 012 015

#### Results

	LCS %REC	SPIKE %REC	SPIKE %DUP	SPIKE %RPD		LCS %REC	SPIKE %RPD
C13-C22	110	120	122	2		70 - 130	0 - 25

### Method # EPA 8081A

QC Reference # 91816 Date Analyzed: 9/29/2020 Technician: SR

Samples 002 004 007 013 016

#### Results

	LCS %REC	LCS %DUP	LCS %RPD		LCS %REC	LCS %RPD
4,4'-DDT	79	95	16		50 - 130	0 - 30
Aldrin	94	106	12		50 - 140	0 - 30
Dieldrin	126	128	2		70 - 130	0 - 30
Endrin	88	87	1		70 - 150	0 - 30
gamma-BHC	100	111	11		50 - 150	0 - 30
Heptachlor	81	79	2		50 - 150	0 - 30

QC Reference # 91862 Date Analyzed: 9/30/2020 Technician: SR

Samples 010 014





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## QUALITY CONTROL DATA REPORT

LOR GEOTECHNICAL GROUP, INC.

2009-00227

Date Reported 10/02/2020

Date Received 09/25/2020

Date Sampled 09/25/2020

Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK  
 AVE. / 33616.21

### Method # EPA 8081A

QC Reference # 91862 Date Analyzed: 9/30/2020 Technician: SR

Samples 010 014

#### Results

LCS %REC LCS %DUP LCS %RPD

	LCS %REC	LCS %DUP	LCS %RPD
4,4'-DDT	82	88	6
Aldrin	103	98	5
Dieldrin	127	123	4
Endrin	88	88	0
gamma-BHC	127	129	2
Heptachlor	84	88	4

#### Control Ranges

LCS %REC LCS %RPD

50 - 130	0 - 30
50 - 140	0 - 30
70 - 130	0 - 30
70 - 150	0 - 30
50 - 150	0 - 30
50 - 150	0 - 30

### Method # EPA 8081A/8082

QC Reference # 91816 Date Analyzed: 9/29/2020 Technician: SR

Samples 002 004 007 013 016

No QC recoveries reported.

QC Reference # 91862 Date Analyzed: 9/30/2020 Technician: SR

Samples 010 014

No QC recoveries reported.

### Method # EPA 8260B

QC Reference # 91791 Date Analyzed: 9/28/2020 Technician: JEN

Samples 001 003 005 006 008 009 011 012 015

#### Results

LCS %REC SPIKE %REC SPIKE %DUP SPIKE %RPD

	LCS %REC	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
1,1-Dichloroethene	129	130	122	8
Benzene	114	130	121	9
Chlorobenzene	109	128	110	18
Toluene	100	124	104	20
Trichloroethene	104	127	104	23

#### Control Ranges

LCS %REC SPIKE %RPD

50 - 150	0 - 30
50 - 150	0 - 30
50 - 150	0 - 30
50 - 150	0 - 30
50 - 150	0 - 30

### Method # LUFT GC/MS

QC Reference # 91792 Date Analyzed: 9/28/2020 Technician: JEN

Samples 001 003 005 006 008 009 011 012 015

#### Results

LCS %REC

C4-C12	121
--------	-----

#### Control Ranges

LCS %REC

70 - 130
----------

No method blank results were above reporting limit



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## QUALITY CONTROL DATA REPORT

LOR GEOTECHNICAL GROUP, INC.

**2009-00227**

Date Reported	10/02/2020
Date Received	09/25/2020
Date Sampled	09/25/2020

**Project: CITY OF ORANGE CORP. YARD, 637 W. STRUCK  
 AVE. / 33616.21**

*Respectfully Submitted:*

*Ken Zheng*

Ken Zheng - President

*For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.*

## ANALYTICAL REPORT

Eurofins Calscience LLC  
7440 Lincoln Way  
Garden Grove, CA 92841  
Tel: (714)895-5494

Laboratory Job ID: 570-39588-1


Laboratory Sample Delivery Group: 33616.21

Client Project/Site: City of Orange Corp Yard 637 W Struck Ave.

**For:**

A&R Laboratories  
1650-C S. Grove Ave  
Ontario, California 91761

Attn: Jennifer Iniguez



Authorized for release by:  
10/2/2020 4:29:35 PM

Don Burley, Senior Project Manager  
(714)895-5494

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*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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## Definitions/Glossary

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

### Qualifiers

#### Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

## Case Narrative

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

**Job ID: 570-39588-1**

**Laboratory: Eurofins Calscience LLC**

### Narrative

#### Job Narrative 570-39588-1

### Comments

No additional comments.

### Receipt

The samples were received on 9/28/2020 2:00 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.1° C.

### Metals

Method 6020: Due to the high concentration of Barium, the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 570-98732 and analytical batch 570-99014 could not be evaluated for accuracy and precision. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Detection Summary

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

## Client Sample ID: SB-1-0.5

## Lab Sample ID: 570-39588-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	2.01		0.985	mg/Kg	20		6020	Total/NA
Barium	56.6		0.985	mg/Kg	20		6020	Total/NA
Chromium	12.9		1.97	mg/Kg	20		6020	Total/NA
Cobalt	4.09		0.985	mg/Kg	20		6020	Total/NA
Copper	12.6		0.985	mg/Kg	20		6020	Total/NA
Lead	17.9		0.985	mg/Kg	20		6020	Total/NA
Nickel	10.9		0.985	mg/Kg	20		6020	Total/NA
Vanadium	25.7		1.97	mg/Kg	20		6020	Total/NA
Zinc	45.3		4.93	mg/Kg	20		6020	Total/NA

## Client Sample ID: SB-1-1

## Lab Sample ID: 570-39588-2

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	3.66		0.985	mg/Kg	20		6020	Total/NA

## Client Sample ID: SB-2-0.5

## Lab Sample ID: 570-39588-3

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	6.92		0.995	mg/Kg	20		6020	Total/NA
Barium	108		0.995	mg/Kg	20		6020	Total/NA
Chromium	18.4		1.99	mg/Kg	20		6020	Total/NA
Cobalt	6.28		0.995	mg/Kg	20		6020	Total/NA
Copper	17.7		0.995	mg/Kg	20		6020	Total/NA
Lead	34.2		0.995	mg/Kg	20		6020	Total/NA
Nickel	11.8		0.995	mg/Kg	20		6020	Total/NA
Vanadium	29.2		1.99	mg/Kg	20		6020	Total/NA
Zinc	78.5		4.98	mg/Kg	20		6020	Total/NA

## Client Sample ID: SB-2-1

## Lab Sample ID: 570-39588-4

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	8.71		1.02	mg/Kg	20		6020	Total/NA

## Client Sample ID: SB-3-0.5

## Lab Sample ID: 570-39588-5

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	4.14		1.01	mg/Kg	20		6020	Total/NA
Barium	110		1.01	mg/Kg	20		6020	Total/NA
Chromium	17.7		2.01	mg/Kg	20		6020	Total/NA
Cobalt	3.57		1.01	mg/Kg	20		6020	Total/NA
Copper	17.0		1.01	mg/Kg	20		6020	Total/NA
Lead	17.9		1.01	mg/Kg	20		6020	Total/NA
Nickel	7.45		1.01	mg/Kg	20		6020	Total/NA
Vanadium	24.9		2.01	mg/Kg	20		6020	Total/NA
Zinc	74.1		5.03	mg/Kg	20		6020	Total/NA

## Client Sample ID: SB-3-1.5

## Lab Sample ID: 570-39588-6

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	3.59		0.971	mg/Kg	20		6020	Total/NA
Barium	93.8		0.971	mg/Kg	20		6020	Total/NA
Chromium	9.86		1.94	mg/Kg	20		6020	Total/NA
Cobalt	4.01		0.971	mg/Kg	20		6020	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Calscience LLC

# Detection Summary

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

## Client Sample ID: SB-3-1.5 (Continued)

## Lab Sample ID: 570-39588-6

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Copper	12.7		0.971	mg/Kg	20		6020	Total/NA
Lead	12.3		0.971	mg/Kg	20		6020	Total/NA
Nickel	8.49		0.971	mg/Kg	20		6020	Total/NA
Vanadium	20.4		1.94	mg/Kg	20		6020	Total/NA
Zinc	54.9		4.85	mg/Kg	20		6020	Total/NA

## Client Sample ID: SB-3-2.5

## Lab Sample ID: 570-39588-7

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	3.68		0.971	mg/Kg	20		6020	Total/NA

## Client Sample ID: SB-4-0.5

## Lab Sample ID: 570-39588-8

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	2.14		0.971	mg/Kg	20		6020	Total/NA
Barium	73.1		0.971	mg/Kg	20		6020	Total/NA
Chromium	8.59		1.94	mg/Kg	20		6020	Total/NA
Cobalt	4.30		0.971	mg/Kg	20		6020	Total/NA
Copper	8.46		0.971	mg/Kg	20		6020	Total/NA
Lead	10.1		0.971	mg/Kg	20		6020	Total/NA
Nickel	11.5		0.971	mg/Kg	20		6020	Total/NA
Vanadium	23.9		1.94	mg/Kg	20		6020	Total/NA
Zinc	47.7		4.85	mg/Kg	20		6020	Total/NA

## Client Sample ID: SB-4-2

## Lab Sample ID: 570-39588-9

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	1.70		1.01	mg/Kg	20		6020	Total/NA
Barium	49.9		1.01	mg/Kg	20		6020	Total/NA
Chromium	8.21		2.01	mg/Kg	20		6020	Total/NA
Cobalt	3.35		1.01	mg/Kg	20		6020	Total/NA
Copper	5.72		1.01	mg/Kg	20		6020	Total/NA
Lead	17.0		1.01	mg/Kg	20		6020	Total/NA
Nickel	8.64		1.01	mg/Kg	20		6020	Total/NA
Vanadium	19.0		2.01	mg/Kg	20		6020	Total/NA
Zinc	34.6		5.03	mg/Kg	20		6020	Total/NA

## Client Sample ID: SB-4-3.5

## Lab Sample ID: 570-39588-10

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	4.13		0.985	mg/Kg	20		6020	Total/NA

## Client Sample ID: SB-5-0.5

## Lab Sample ID: 570-39588-11

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	4.45		0.971	mg/Kg	20		6020	Total/NA
Barium	94.5		0.971	mg/Kg	20		6020	Total/NA
Chromium	11.6		1.94	mg/Kg	20		6020	Total/NA
Cobalt	5.07		0.971	mg/Kg	20		6020	Total/NA
Copper	13.8		0.971	mg/Kg	20		6020	Total/NA
Lead	22.8		0.971	mg/Kg	20		6020	Total/NA
Molybdenum	1.30		0.971	mg/Kg	20		6020	Total/NA
Nickel	10.4		0.971	mg/Kg	20		6020	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Calscience LLC



# Detection Summary

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

## Client Sample ID: SB-5-0.5 (Continued)

## Lab Sample ID: 570-39588-11

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Vanadium	24.0		1.94	mg/Kg	20		6020	Total/NA
Zinc	77.7		4.85	mg/Kg	20		6020	Total/NA

## Client Sample ID: SB-5-1.5

## Lab Sample ID: 570-39588-12

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	3.70		0.995	mg/Kg	20		6020	Total/NA
Barium	86.2		0.995	mg/Kg	20		6020	Total/NA
Chromium	59.1		1.99	mg/Kg	20		6020	Total/NA
Cobalt	6.11		0.995	mg/Kg	20		6020	Total/NA
Copper	15.1		0.995	mg/Kg	20		6020	Total/NA
Lead	15.6		0.995	mg/Kg	20		6020	Total/NA
Molybdenum	1.22		0.995	mg/Kg	20		6020	Total/NA
Nickel	11.1		0.995	mg/Kg	20		6020	Total/NA
Vanadium	77.5		1.99	mg/Kg	20		6020	Total/NA
Zinc	59.5		4.98	mg/Kg	20		6020	Total/NA

## Client Sample ID: SB-5-2.5

## Lab Sample ID: 570-39588-13

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	2.42		0.990	mg/Kg	20		6020	Total/NA

## Client Sample ID: SB-6-0.5

## Lab Sample ID: 570-39588-14

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	2.91		1.01	mg/Kg	20		6020	Total/NA

## Client Sample ID: SB-7-1

## Lab Sample ID: 570-39588-15

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	5.66		1.03	mg/Kg	20		6020	Total/NA
Barium	54.5		1.03	mg/Kg	20		6020	Total/NA
Chromium	282		2.05	mg/Kg	20		6020	Total/NA
Cobalt	6.61		1.03	mg/Kg	20		6020	Total/NA
Copper	29.8		1.03	mg/Kg	20		6020	Total/NA
Lead	5.12		1.03	mg/Kg	20		6020	Total/NA
Molybdenum	4.63		1.03	mg/Kg	20		6020	Total/NA
Nickel	5.64		1.03	mg/Kg	20		6020	Total/NA
Vanadium	340		2.05	mg/Kg	20		6020	Total/NA
Zinc	20.9		5.13	mg/Kg	20		6020	Total/NA

## Client Sample ID: SB-7-1.5

## Lab Sample ID: 570-39588-16

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	2.99		1.02	mg/Kg	20		6020	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Calscience LLC

# Client Sample Results

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

## Method: 6020 - Metals (ICP/MS)

Client Sample ID: SB-1-0.5  
Date Collected: 09/25/20 10:44  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-1  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.97	mg/Kg		10/01/20 14:00	10/02/20 13:06	20
<b>Arsenic</b>	<b>2.01</b>		0.985	mg/Kg		10/01/20 14:00	10/02/20 13:06	20
<b>Barium</b>	<b>56.6</b>		0.985	mg/Kg		10/01/20 14:00	10/02/20 13:06	20
Beryllium	ND		0.985	mg/Kg		10/01/20 14:00	10/02/20 13:06	20
Cadmium	ND		0.985	mg/Kg		10/01/20 14:00	10/02/20 13:06	20
<b>Chromium</b>	<b>12.9</b>		1.97	mg/Kg		10/01/20 14:00	10/02/20 13:06	20
<b>Cobalt</b>	<b>4.09</b>		0.985	mg/Kg		10/01/20 14:00	10/02/20 13:06	20
<b>Copper</b>	<b>12.6</b>		0.985	mg/Kg		10/01/20 14:00	10/02/20 13:06	20
<b>Lead</b>	<b>17.9</b>		0.985	mg/Kg		10/01/20 14:00	10/02/20 13:06	20
Molybdenum	ND		0.985	mg/Kg		10/01/20 14:00	10/02/20 13:06	20
<b>Nickel</b>	<b>10.9</b>		0.985	mg/Kg		10/01/20 14:00	10/02/20 13:06	20
Selenium	ND		0.985	mg/Kg		10/01/20 14:00	10/02/20 13:06	20
Silver	ND		0.985	mg/Kg		10/01/20 14:00	10/02/20 13:06	20
Thallium	ND		0.985	mg/Kg		10/01/20 14:00	10/02/20 13:06	20
<b>Vanadium</b>	<b>25.7</b>		1.97	mg/Kg		10/01/20 14:00	10/02/20 13:06	20
<b>Zinc</b>	<b>45.3</b>		4.93	mg/Kg		10/01/20 14:00	10/02/20 13:06	20

Client Sample ID: SB-1-1  
Date Collected: 09/25/20 10:45  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-2  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Arsenic</b>	<b>3.66</b>		0.985	mg/Kg		10/01/20 14:00	10/02/20 13:09	20

Client Sample ID: SB-2-0.5  
Date Collected: 09/25/20 09:45  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-3  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.99	mg/Kg		10/01/20 14:00	10/02/20 13:12	20
<b>Arsenic</b>	<b>6.92</b>		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:12	20
<b>Barium</b>	<b>108</b>		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:12	20
Beryllium	ND		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:12	20
Cadmium	ND		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:12	20
<b>Chromium</b>	<b>18.4</b>		1.99	mg/Kg		10/01/20 14:00	10/02/20 13:12	20
<b>Cobalt</b>	<b>6.28</b>		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:12	20
<b>Copper</b>	<b>17.7</b>		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:12	20
<b>Lead</b>	<b>34.2</b>		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:12	20
Molybdenum	ND		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:12	20
<b>Nickel</b>	<b>11.8</b>		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:12	20
Selenium	ND		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:12	20
Silver	ND		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:12	20
Thallium	ND		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:12	20
<b>Vanadium</b>	<b>29.2</b>		1.99	mg/Kg		10/01/20 14:00	10/02/20 13:12	20
<b>Zinc</b>	<b>78.5</b>		4.98	mg/Kg		10/01/20 14:00	10/02/20 13:12	20

Client Sample ID: SB-2-1  
Date Collected: 09/25/20 09:46  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-4  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Arsenic</b>	<b>8.71</b>		1.02	mg/Kg		10/01/20 14:00	10/02/20 13:16	20

# Client Sample Results

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

## Method: 6020 - Metals (ICP/MS)

Client Sample ID: SB-3-0.5  
Date Collected: 09/25/20 14:06  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-5  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.01	mg/Kg		10/01/20 14:00	10/02/20 13:19	20
Arsenic	4.14		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:19	20
Barium	110		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:19	20
Beryllium	ND		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:19	20
Cadmium	ND		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:19	20
Chromium	17.7		2.01	mg/Kg		10/01/20 14:00	10/02/20 13:19	20
Cobalt	3.57		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:19	20
Copper	17.0		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:19	20
Lead	17.9		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:19	20
Molybdenum	ND		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:19	20
Nickel	7.45		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:19	20
Selenium	ND		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:19	20
Silver	ND		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:19	20
Thallium	ND		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:19	20
Vanadium	24.9		2.01	mg/Kg		10/01/20 14:00	10/02/20 13:19	20
Zinc	74.1		5.03	mg/Kg		10/01/20 14:00	10/02/20 13:19	20

Client Sample ID: SB-3-1.5  
Date Collected: 09/25/20 14:07  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-6  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.94	mg/Kg		10/01/20 14:00	10/02/20 13:22	20
Arsenic	3.59		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:22	20
Barium	93.8		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:22	20
Beryllium	ND		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:22	20
Cadmium	ND		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:22	20
Chromium	9.86		1.94	mg/Kg		10/01/20 14:00	10/02/20 13:22	20
Cobalt	4.01		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:22	20
Copper	12.7		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:22	20
Lead	12.3		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:22	20
Molybdenum	ND		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:22	20
Nickel	8.49		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:22	20
Selenium	ND		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:22	20
Silver	ND		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:22	20
Thallium	ND		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:22	20
Vanadium	20.4		1.94	mg/Kg		10/01/20 14:00	10/02/20 13:22	20
Zinc	54.9		4.85	mg/Kg		10/01/20 14:00	10/02/20 13:22	20

Client Sample ID: SB-3-2.5  
Date Collected: 09/25/20 14:08  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-7  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.68		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:25	20

Client Sample ID: SB-4-0.5  
Date Collected: 09/25/20 13:25  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-8  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.94	mg/Kg		10/01/20 14:00	10/02/20 13:28	20
Arsenic	2.14		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:28	20

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# Client Sample Results

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

## Method: 6020 - Metals (ICP/MS) (Continued)

Client Sample ID: SB-4-0.5  
Date Collected: 09/25/20 13:25  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-8  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	73.1		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:28	20
Beryllium	ND		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:28	20
Cadmium	ND		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:28	20
Chromium	8.59		1.94	mg/Kg		10/01/20 14:00	10/02/20 13:28	20
Cobalt	4.30		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:28	20
Copper	8.46		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:28	20
Lead	10.1		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:28	20
Molybdenum	ND		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:28	20
Nickel	11.5		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:28	20
Selenium	ND		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:28	20
Silver	ND		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:28	20
Thallium	ND		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:28	20
Vanadium	23.9		1.94	mg/Kg		10/01/20 14:00	10/02/20 13:28	20
Zinc	47.7		4.85	mg/Kg		10/01/20 14:00	10/02/20 13:28	20

Client Sample ID: SB-4-2  
Date Collected: 09/25/20 13:26  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-9  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.01	mg/Kg		10/01/20 14:00	10/02/20 13:39	20
Arsenic	1.70		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:39	20
Barium	49.9		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:39	20
Beryllium	ND		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:39	20
Cadmium	ND		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:39	20
Chromium	8.21		2.01	mg/Kg		10/01/20 14:00	10/02/20 13:39	20
Cobalt	3.35		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:39	20
Copper	5.72		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:39	20
Lead	17.0		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:39	20
Molybdenum	ND		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:39	20
Nickel	8.64		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:39	20
Selenium	ND		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:39	20
Silver	ND		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:39	20
Thallium	ND		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:39	20
Vanadium	19.0		2.01	mg/Kg		10/01/20 14:00	10/02/20 13:39	20
Zinc	34.6		5.03	mg/Kg		10/01/20 14:00	10/02/20 13:39	20

Client Sample ID: SB-4-3.5  
Date Collected: 09/25/20 13:27  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-10  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.13		0.985	mg/Kg		10/01/20 14:00	10/02/20 13:42	20

Client Sample ID: SB-5-0.5  
Date Collected: 09/25/20 12:28  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-11  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.94	mg/Kg		10/01/20 14:00	10/02/20 13:45	20
Arsenic	4.45		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:45	20
Barium	94.5		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:45	20
Beryllium	ND		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:45	20

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# Client Sample Results

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

## Method: 6020 - Metals (ICP/MS) (Continued)

Client Sample ID: SB-5-0.5  
Date Collected: 09/25/20 12:28  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-11  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:45	20
Chromium	11.6		1.94	mg/Kg		10/01/20 14:00	10/02/20 13:45	20
Cobalt	5.07		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:45	20
Copper	13.8		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:45	20
Lead	22.8		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:45	20
Molybdenum	1.30		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:45	20
Nickel	10.4		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:45	20
Selenium	ND		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:45	20
Silver	ND		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:45	20
Thallium	ND		0.971	mg/Kg		10/01/20 14:00	10/02/20 13:45	20
Vanadium	24.0		1.94	mg/Kg		10/01/20 14:00	10/02/20 13:45	20
Zinc	77.7		4.85	mg/Kg		10/01/20 14:00	10/02/20 13:45	20

Client Sample ID: SB-5-1.5  
Date Collected: 09/25/20 12:29  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-12  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.99	mg/Kg		10/01/20 14:00	10/02/20 13:49	20
Arsenic	3.70		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:49	20
Barium	86.2		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:49	20
Beryllium	ND		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:49	20
Cadmium	ND		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:49	20
Chromium	59.1		1.99	mg/Kg		10/01/20 14:00	10/02/20 13:49	20
Cobalt	6.11		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:49	20
Copper	15.1		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:49	20
Lead	15.6		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:49	20
Molybdenum	1.22		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:49	20
Nickel	11.1		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:49	20
Selenium	ND		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:49	20
Silver	ND		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:49	20
Thallium	ND		0.995	mg/Kg		10/01/20 14:00	10/02/20 13:49	20
Vanadium	77.5		1.99	mg/Kg		10/01/20 14:00	10/02/20 13:49	20
Zinc	59.5		4.98	mg/Kg		10/01/20 14:00	10/02/20 13:49	20

Client Sample ID: SB-5-2.5  
Date Collected: 09/25/20 12:30  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-13  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.42		0.990	mg/Kg		10/01/20 14:00	10/02/20 13:52	20

Client Sample ID: SB-6-0.5  
Date Collected: 09/25/20 11:37  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-14  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.91		1.01	mg/Kg		10/01/20 14:00	10/02/20 13:55	20

# Client Sample Results

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

## Method: 6020 - Metals (ICP/MS)

Client Sample ID: SB-7-1  
Date Collected: 09/25/20 09:04  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-15  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.05	mg/Kg		10/01/20 14:00	10/02/20 13:58	20
Arsenic	5.66		1.03	mg/Kg		10/01/20 14:00	10/02/20 13:58	20
Barium	54.5		1.03	mg/Kg		10/01/20 14:00	10/02/20 13:58	20
Beryllium	ND		1.03	mg/Kg		10/01/20 14:00	10/02/20 13:58	20
Cadmium	ND		1.03	mg/Kg		10/01/20 14:00	10/02/20 13:58	20
Chromium	282		2.05	mg/Kg		10/01/20 14:00	10/02/20 13:58	20
Cobalt	6.61		1.03	mg/Kg		10/01/20 14:00	10/02/20 13:58	20
Copper	29.8		1.03	mg/Kg		10/01/20 14:00	10/02/20 13:58	20
Lead	5.12		1.03	mg/Kg		10/01/20 14:00	10/02/20 13:58	20
Molybdenum	4.63		1.03	mg/Kg		10/01/20 14:00	10/02/20 13:58	20
Nickel	5.64		1.03	mg/Kg		10/01/20 14:00	10/02/20 13:58	20
Selenium	ND		1.03	mg/Kg		10/01/20 14:00	10/02/20 13:58	20
Silver	ND		1.03	mg/Kg		10/01/20 14:00	10/02/20 13:58	20
Thallium	ND		1.03	mg/Kg		10/01/20 14:00	10/02/20 13:58	20
Vanadium	340		2.05	mg/Kg		10/01/20 14:00	10/02/20 13:58	20
Zinc	20.9		5.13	mg/Kg		10/01/20 14:00	10/02/20 13:58	20

Client Sample ID: SB-7-1.5  
Date Collected: 09/25/20 09:05  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-16  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.99		1.02	mg/Kg		10/01/20 14:00	10/02/20 14:01	20

# QC Sample Results

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

## Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 570-98732/1-A ^20

Matrix: Solid

Analysis Batch: 99014

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 98732

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.98	mg/Kg		10/01/20 14:00	10/02/20 12:23	20
Arsenic	ND		0.990	mg/Kg		10/01/20 14:00	10/02/20 12:23	20
Barium	ND		0.990	mg/Kg		10/01/20 14:00	10/02/20 12:23	20
Beryllium	ND		0.990	mg/Kg		10/01/20 14:00	10/02/20 12:23	20
Cadmium	ND		0.990	mg/Kg		10/01/20 14:00	10/02/20 12:23	20
Chromium	ND		1.98	mg/Kg		10/01/20 14:00	10/02/20 12:23	20
Cobalt	ND		0.990	mg/Kg		10/01/20 14:00	10/02/20 12:23	20
Copper	ND		0.990	mg/Kg		10/01/20 14:00	10/02/20 12:23	20
Lead	ND		0.990	mg/Kg		10/01/20 14:00	10/02/20 12:23	20
Molybdenum	ND		0.990	mg/Kg		10/01/20 14:00	10/02/20 12:23	20
Nickel	ND		0.990	mg/Kg		10/01/20 14:00	10/02/20 12:23	20
Selenium	ND		0.990	mg/Kg		10/01/20 14:00	10/02/20 12:23	20
Silver	ND		0.990	mg/Kg		10/01/20 14:00	10/02/20 12:23	20
Thallium	ND		0.990	mg/Kg		10/01/20 14:00	10/02/20 12:23	20
Vanadium	ND		1.98	mg/Kg		10/01/20 14:00	10/02/20 12:23	20
Zinc	ND		4.95	mg/Kg		10/01/20 14:00	10/02/20 12:23	20

Lab Sample ID: LCS 570-98732/2-A ^20

Matrix: Solid

Analysis Batch: 99014

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 98732

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	24.9	23.17		mg/Kg		93	80 - 120
Arsenic	24.9	23.66		mg/Kg		95	80 - 120
Barium	24.9	26.89		mg/Kg		108	80 - 120
Beryllium	24.9	23.82		mg/Kg		96	80 - 120
Cadmium	24.9	24.27		mg/Kg		98	80 - 120
Chromium	24.9	22.90		mg/Kg		92	80 - 120
Cobalt	24.9	22.87		mg/Kg		92	80 - 120
Copper	24.9	23.40		mg/Kg		94	80 - 120
Lead	24.9	23.44		mg/Kg		94	80 - 120
Molybdenum	24.9	22.92		mg/Kg		92	80 - 120
Nickel	24.9	24.57		mg/Kg		99	80 - 120
Selenium	24.9	23.37		mg/Kg		94	80 - 120
Silver	12.4	13.05		mg/Kg		105	80 - 120
Thallium	24.9	22.59		mg/Kg		91	80 - 120
Vanadium	24.9	23.46		mg/Kg		94	80 - 120
Zinc	24.9	23.69		mg/Kg		95	80 - 120

Lab Sample ID: LCSD 570-98732/3-A ^20

Matrix: Solid

Analysis Batch: 99014

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 98732

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Antimony	24.8	23.51		mg/Kg		95	80 - 120	1	20
Arsenic	24.8	23.33		mg/Kg		94	80 - 120	1	20
Barium	24.8	26.74		mg/Kg		108	80 - 120	1	20
Beryllium	24.8	23.95		mg/Kg		97	80 - 120	1	20
Cadmium	24.8	24.45		mg/Kg		99	80 - 120	1	20

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# QC Sample Results

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-98732/3-A ^20

Matrix: Solid

Analysis Batch: 99014

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 98732

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	24.8	23.11		mg/Kg		93	80 - 120	1	20
Cobalt	24.8	22.94		mg/Kg		93	80 - 120	0	20
Copper	24.8	23.20		mg/Kg		94	80 - 120	1	20
Lead	24.8	23.56		mg/Kg		95	80 - 120	0	20
Molybdenum	24.8	22.83		mg/Kg		92	80 - 120	0	20
Nickel	24.8	24.06		mg/Kg		97	80 - 120	2	20
Selenium	24.8	24.10		mg/Kg		97	80 - 120	3	20
Silver	12.4	12.68		mg/Kg		102	80 - 120	3	20
Thallium	24.8	22.71		mg/Kg		92	80 - 120	1	20
Vanadium	24.8	24.14		mg/Kg		98	80 - 120	3	20
Zinc	24.8	23.45		mg/Kg		95	80 - 120	1	20

Lab Sample ID: 570-39726-A-1-E MS ^20

Matrix: Solid

Analysis Batch: 99014

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 98732

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		24.6	3.489		mg/Kg		14	1 - 97		
Arsenic	1.66		24.6	24.29		mg/Kg		92	72 - 132		
Barium	114		24.6	130.8	4	mg/Kg		68	50 - 152		
Beryllium	ND		24.6	27.61		mg/Kg		111	61 - 121		
Cadmium	ND		24.6	27.07		mg/Kg		110	85 - 121		
Chromium	10.9		24.6	35.42		mg/Kg		100	20 - 182		
Cobalt	6.63		24.6	29.24		mg/Kg		92	40 - 166		
Copper	13.4		24.6	39.55		mg/Kg		106	25 - 157		
Lead	6.92		24.6	32.19		mg/Kg		103	62 - 134		
Molybdenum	ND		24.6	23.20		mg/Kg		92	69 - 123		
Nickel	8.20		24.6	30.75		mg/Kg		92	46 - 154		
Selenium	ND		24.6	20.34		mg/Kg		83	54 - 132		
Silver	ND		12.3	11.43		mg/Kg		93	78 - 126		
Thallium	ND		24.6	23.79		mg/Kg		97	79 - 115		
Vanadium	25.1		24.6	45.29		mg/Kg		82	28 - 178		
Zinc	59.0		24.6	82.35		mg/Kg		95	23 - 173		

Lab Sample ID: 570-39726-A-1-F MSD ^20

Matrix: Solid

Analysis Batch: 99014

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 98732

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		24.9	3.462		mg/Kg		14	1 - 97	1	39
Arsenic	1.66		24.9	24.01		mg/Kg		90	72 - 132	1	13
Barium	114		24.9	132.0	4	mg/Kg		72	50 - 152	1	41
Beryllium	ND		24.9	26.62		mg/Kg		106	61 - 121	4	13
Cadmium	ND		24.9	27.11		mg/Kg		109	85 - 121	0	12
Chromium	10.9		24.9	34.00		mg/Kg		93	20 - 182	4	15
Cobalt	6.63		24.9	28.85		mg/Kg		89	40 - 166	1	14
Copper	13.4		24.9	38.01		mg/Kg		99	25 - 157	4	22
Lead	6.92		24.9	31.38		mg/Kg		98	62 - 134	3	23
Molybdenum	ND		24.9	22.69		mg/Kg		89	69 - 123	2	13

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# QC Sample Results

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-39726-A-1-F MSD ^20

Matrix: Solid

Analysis Batch: 99014

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 98732

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nickel	8.20		24.9	30.86		mg/Kg		91	46 - 154	0	15
Selenium	ND		24.9	19.68		mg/Kg		79	54 - 132	3	14
Silver	ND		12.4	11.19		mg/Kg		90	78 - 126	2	15
Thallium	ND		24.9	23.24		mg/Kg		93	79 - 115	2	11
Vanadium	25.1		24.9	45.44		mg/Kg		82	28 - 178	0	28
Zinc	59.0		24.9	80.62		mg/Kg		87	23 - 173	2	18

# QC Association Summary

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

## Metals

### Prep Batch: 98732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-39588-1	SB-1-0.5	Total/NA	Solid	3050B	
570-39588-2	SB-1-1	Total/NA	Solid	3050B	
570-39588-3	SB-2-0.5	Total/NA	Solid	3050B	
570-39588-4	SB-2-1	Total/NA	Solid	3050B	
570-39588-5	SB-3-0.5	Total/NA	Solid	3050B	
570-39588-6	SB-3-1.5	Total/NA	Solid	3050B	
570-39588-7	SB-3-2.5	Total/NA	Solid	3050B	
570-39588-8	SB-4-0.5	Total/NA	Solid	3050B	
570-39588-9	SB-4-2	Total/NA	Solid	3050B	
570-39588-10	SB-4-3.5	Total/NA	Solid	3050B	
570-39588-11	SB-5-0.5	Total/NA	Solid	3050B	
570-39588-12	SB-5-1.5	Total/NA	Solid	3050B	
570-39588-13	SB-5-2.5	Total/NA	Solid	3050B	
570-39588-14	SB-6-0.5	Total/NA	Solid	3050B	
570-39588-15	SB-7-1	Total/NA	Solid	3050B	
570-39588-16	SB-7-1.5	Total/NA	Solid	3050B	
MB 570-98732/1-A ^20	Method Blank	Total/NA	Solid	3050B	
LCS 570-98732/2-A ^20	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-98732/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	3050B	
570-39726-A-1-E MS ^20	Matrix Spike	Total/NA	Solid	3050B	
570-39726-A-1-F MSD ^20	Matrix Spike Duplicate	Total/NA	Solid	3050B	

### Analysis Batch: 99014

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-39588-1	SB-1-0.5	Total/NA	Solid	6020	98732
570-39588-2	SB-1-1	Total/NA	Solid	6020	98732
570-39588-3	SB-2-0.5	Total/NA	Solid	6020	98732
570-39588-4	SB-2-1	Total/NA	Solid	6020	98732
570-39588-5	SB-3-0.5	Total/NA	Solid	6020	98732
570-39588-6	SB-3-1.5	Total/NA	Solid	6020	98732
570-39588-7	SB-3-2.5	Total/NA	Solid	6020	98732
570-39588-8	SB-4-0.5	Total/NA	Solid	6020	98732
570-39588-9	SB-4-2	Total/NA	Solid	6020	98732
570-39588-10	SB-4-3.5	Total/NA	Solid	6020	98732
570-39588-11	SB-5-0.5	Total/NA	Solid	6020	98732
570-39588-12	SB-5-1.5	Total/NA	Solid	6020	98732
570-39588-13	SB-5-2.5	Total/NA	Solid	6020	98732
570-39588-14	SB-6-0.5	Total/NA	Solid	6020	98732
570-39588-15	SB-7-1	Total/NA	Solid	6020	98732
570-39588-16	SB-7-1.5	Total/NA	Solid	6020	98732
MB 570-98732/1-A ^20	Method Blank	Total/NA	Solid	6020	98732
LCS 570-98732/2-A ^20	Lab Control Sample	Total/NA	Solid	6020	98732
LCSD 570-98732/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	6020	98732
570-39726-A-1-E MS ^20	Matrix Spike	Total/NA	Solid	6020	98732
570-39726-A-1-F MSD ^20	Matrix Spike Duplicate	Total/NA	Solid	6020	98732

# Lab Chronicle

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

**Client Sample ID: SB-1-0.5**

**Lab Sample ID: 570-39588-1**

**Date Collected: 09/25/20 10:44**

**Matrix: Solid**

**Date Received: 09/28/20 14:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.03 g	100 mL	98732	10/01/20 14:00	SP7J	ECL 1
Total/NA	Analysis	6020		20			99014	10/02/20 13:06	UFLE	ECL 1
Instrument ID: ICPMS05										

**Client Sample ID: SB-1-1**

**Lab Sample ID: 570-39588-2**

**Date Collected: 09/25/20 10:45**

**Matrix: Solid**

**Date Received: 09/28/20 14:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.03 g	100 mL	98732	10/01/20 14:00	SP7J	ECL 1
Total/NA	Analysis	6020		20			99014	10/02/20 13:09	UFLE	ECL 1
Instrument ID: ICPMS05										

**Client Sample ID: SB-2-0.5**

**Lab Sample ID: 570-39588-3**

**Date Collected: 09/25/20 09:45**

**Matrix: Solid**

**Date Received: 09/28/20 14:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.01 g	100 mL	98732	10/01/20 14:00	SP7J	ECL 1
Total/NA	Analysis	6020		20			99014	10/02/20 13:12	UFLE	ECL 1
Instrument ID: ICPMS05										

**Client Sample ID: SB-2-1**

**Lab Sample ID: 570-39588-4**

**Date Collected: 09/25/20 09:46**

**Matrix: Solid**

**Date Received: 09/28/20 14:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.97 g	100 mL	98732	10/01/20 14:00	SP7J	ECL 1
Total/NA	Analysis	6020		20			99014	10/02/20 13:16	UFLE	ECL 1
Instrument ID: ICPMS05										

**Client Sample ID: SB-3-0.5**

**Lab Sample ID: 570-39588-5**

**Date Collected: 09/25/20 14:06**

**Matrix: Solid**

**Date Received: 09/28/20 14:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.99 g	100 mL	98732	10/01/20 14:00	SP7J	ECL 1
Total/NA	Analysis	6020		20			99014	10/02/20 13:19	UFLE	ECL 1
Instrument ID: ICPMS05										

# Lab Chronicle

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

**Client Sample ID: SB-3-1.5**

**Lab Sample ID: 570-39588-6**

**Date Collected: 09/25/20 14:07**

**Matrix: Solid**

**Date Received: 09/28/20 14:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.06 g	100 mL	98732	10/01/20 14:00	SP7J	ECL 1
Total/NA	Analysis	6020		20			99014	10/02/20 13:22	UFLE	ECL 1
Instrument ID: ICPMS05										

**Client Sample ID: SB-3-2.5**

**Lab Sample ID: 570-39588-7**

**Date Collected: 09/25/20 14:08**

**Matrix: Solid**

**Date Received: 09/28/20 14:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.06 g	100 mL	98732	10/01/20 14:00	SP7J	ECL 1
Total/NA	Analysis	6020		20			99014	10/02/20 13:25	UFLE	ECL 1
Instrument ID: ICPMS05										

**Client Sample ID: SB-4-0.5**

**Lab Sample ID: 570-39588-8**

**Date Collected: 09/25/20 13:25**

**Matrix: Solid**

**Date Received: 09/28/20 14:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.06 g	100 mL	98732	10/01/20 14:00	SP7J	ECL 1
Total/NA	Analysis	6020		20			99014	10/02/20 13:28	UFLE	ECL 1
Instrument ID: ICPMS05										

**Client Sample ID: SB-4-2**

**Lab Sample ID: 570-39588-9**

**Date Collected: 09/25/20 13:26**

**Matrix: Solid**

**Date Received: 09/28/20 14:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.99 g	100 mL	98732	10/01/20 14:00	SP7J	ECL 1
Total/NA	Analysis	6020		20			99014	10/02/20 13:39	UFLE	ECL 1
Instrument ID: ICPMS05										

**Client Sample ID: SB-4-3.5**

**Lab Sample ID: 570-39588-10**

**Date Collected: 09/25/20 13:27**

**Matrix: Solid**

**Date Received: 09/28/20 14:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.03 g	100 mL	98732	10/01/20 14:00	SP7J	ECL 1
Total/NA	Analysis	6020		20			99014	10/02/20 13:42	UFLE	ECL 1
Instrument ID: ICPMS05										

# Lab Chronicle

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

**Client Sample ID: SB-5-0.5**

**Date Collected: 09/25/20 12:28**

**Date Received: 09/28/20 14:00**

**Lab Sample ID: 570-39588-11**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.06 g	100 mL	98732	10/01/20 14:00	SP7J	ECL 1
Total/NA	Analysis	6020		20			99014	10/02/20 13:45	UFLE	ECL 1
Instrument ID: ICPMS05										

**Client Sample ID: SB-5-1.5**

**Date Collected: 09/25/20 12:29**

**Date Received: 09/28/20 14:00**

**Lab Sample ID: 570-39588-12**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.01 g	100 mL	98732	10/01/20 14:00	SP7J	ECL 1
Total/NA	Analysis	6020		20			99014	10/02/20 13:49	UFLE	ECL 1
Instrument ID: ICPMS05										

**Client Sample ID: SB-5-2.5**

**Date Collected: 09/25/20 12:30**

**Date Received: 09/28/20 14:00**

**Lab Sample ID: 570-39588-13**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.02 g	100 mL	98732	10/01/20 14:00	SP7J	ECL 1
Total/NA	Analysis	6020		20			99014	10/02/20 13:52	UFLE	ECL 1
Instrument ID: ICPMS05										

**Client Sample ID: SB-6-0.5**

**Date Collected: 09/25/20 11:37**

**Date Received: 09/28/20 14:00**

**Lab Sample ID: 570-39588-14**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.98 g	100 mL	98732	10/01/20 14:00	SP7J	ECL 1
Total/NA	Analysis	6020		20			99014	10/02/20 13:55	UFLE	ECL 1
Instrument ID: ICPMS05										

**Client Sample ID: SB-7-1**

**Date Collected: 09/25/20 09:04**

**Date Received: 09/28/20 14:00**

**Lab Sample ID: 570-39588-15**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.95 g	100 mL	98732	10/01/20 14:00	SP7J	ECL 1
Total/NA	Analysis	6020		20			99014	10/02/20 13:58	UFLE	ECL 1
Instrument ID: ICPMS05										

# Lab Chronicle

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

**Client Sample ID: SB-7-1.5**

**Lab Sample ID: 570-39588-16**

**Date Collected: 09/25/20 09:05**

**Matrix: Solid**

**Date Received: 09/28/20 14:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.97 g	100 mL	98732	10/01/20 14:00	SP7J	ECL 1
Total/NA	Analysis	6020		20			99014	10/02/20 14:01	UFLE	ECL 1
Instrument ID: ICPMS05										

## Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

## Accreditation/Certification Summary

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

### Laboratory: Eurofins Calscience LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	Los Angeles County Sanitation Districts	10109	09-30-21
California	SCAQMD LAP	17LA0919	11-30-20
California	State	2944	09-30-21
Guam	State	20-003R	10-31-20
Nevada	State	CA00111	07-31-21
Oregon	NELAP	CA300001	01-29-21
USDA	US Federal Programs	P330-20-00034	02-10-23
Washington	State	C916-18	10-11-20

## Method Summary

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	SW846	ECL 1
3050B	Preparation, Metals	SW846	ECL 1

### Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494



## Sample Summary

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-1  
SDG: 33616.21

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
570-39588-1	SB-1-0.5	Solid	09/25/20 10:44	09/28/20 14:00	
570-39588-2	SB-1-1	Solid	09/25/20 10:45	09/28/20 14:00	
570-39588-3	SB-2-0.5	Solid	09/25/20 09:45	09/28/20 14:00	
570-39588-4	SB-2-1	Solid	09/25/20 09:46	09/28/20 14:00	
570-39588-5	SB-3-0.5	Solid	09/25/20 14:06	09/28/20 14:00	
570-39588-6	SB-3-1.5	Solid	09/25/20 14:07	09/28/20 14:00	
570-39588-7	SB-3-2.5	Solid	09/25/20 14:08	09/28/20 14:00	
570-39588-8	SB-4-0.5	Solid	09/25/20 13:25	09/28/20 14:00	
570-39588-9	SB-4-2	Solid	09/25/20 13:26	09/28/20 14:00	
570-39588-10	SB-4-3.5	Solid	09/25/20 13:27	09/28/20 14:00	
570-39588-11	SB-5-0.5	Solid	09/25/20 12:28	09/28/20 14:00	
570-39588-12	SB-5-1.5	Solid	09/25/20 12:29	09/28/20 14:00	
570-39588-13	SB-5-2.5	Solid	09/25/20 12:30	09/28/20 14:00	
570-39588-14	SB-6-0.5	Solid	09/25/20 11:37	09/28/20 14:00	
570-39588-15	SB-7-1	Solid	09/25/20 09:04	09/28/20 14:00	
570-39588-16	SB-7-1.5	Solid	09/25/20 09:05	09/28/20 14:00	



**A & R Laboratories**  
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office@arlaboratories.com

**Chain of Custody Record**

A & R Work Order #: **2009-00227**

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\*CalScience\*

Project No: 83010.21		Project Name: CITY OF DRAKE COOP YARD 1037 W. STURGEON AVE.	
Project Manager: Jennifer Iniguez		Phone: 951-779-0310 Fax: 951-779-0344	
Customer Name: (Report and Billing)		Street Address: (Report and Billing)	
A & R Laboratories		1650 S. Grove Ave., Ste. C	
Email:		City, State Zip	
jennifer.iniguez@arlaboratories.com		Ontario, CA 91761	

Lab #	Sample ID	Grab/Comp	Date sampled	Time sampled	Sample matrix	Container # & Type	Preserved	Micro: Plate Cnt., Coliform, E-Coli	Chem: BOD, TSS, TDS, pH, EC	Chem: Cyanide, Ammonia, Oil & Grease	IC: Br, SO4, PO4, NO3, NO2, Cl	Metals: Title 22 (CAM17 Metals) or RCRA	LUFT Gas or 8015 GRO or C4-C12	LUFT Diesel or 8015 DRO or C13-C40	VOCs by GCMS: 8260 or 624	VOCs by GCMS: BTEX, OXys	SVOCs: 8270 or 625	Pest. &/or PCBs: 608 or 8081/8082	CAM16 by 6020	As by 6020	Turn Around
SB-1-0.5			9/25/2020	10:44	Soil	1 G													X	X	24hr RUSH*
SB-1-1				10:45															X	X	48hr RUSH*
SB-2-0.5				9:45															X	X	Normal
SB-2-1				9:46															X	X	Other
SB-3-0.5				14:06															X	X	
SB-3-1.5				14:07															X	X	
SB-3-2.5				14:08															X	X	
SB-4-0.5				13:25															X	X	
SB-4-2				13:26															X	X	
SB-4-3.5				13:27															X	X	

1) Relinquished by: (Sampler's Signature)	Date: 9/25/20	Time: 14:00	3) Relinquished by: JSA	Date: 9/25/20	Time: 17:00
2) Received by: JSA	Date: 9/25/20	Time: 17:00	4) Received by: JSA	Date: 9/25/20	Time: 17:00
This section is to be completed by laboratory personnel:					
Samples Chilled <input checked="" type="radio"/> Yes <input type="radio"/> No	Custody Seals <input type="radio"/> Yes <input checked="" type="radio"/> No	Samples Intact <input type="radio"/> Yes <input checked="" type="radio"/> No	Temp C <input type="radio"/> Yes <input checked="" type="radio"/> No	Delivery <input checked="" type="radio"/> Courier <input type="radio"/> Walk In	Report Delivery Formats <input type="checkbox"/> Paper <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> XLS
<input type="radio"/> From Field				<input type="radio"/> UPS/Fed Ex	EDD, Type <input type="checkbox"/> EDD, EPA Site ID <input type="checkbox"/>

Laboratory Notes: Please cc: jenny.jiang@arlaboratories.com

Disposal: ☐ Return ☒ Lab Disposal

Unless other arrangements are made samples will be disposed of 60 days after receipt.

\*PRIOR approval, additional fee, work received after 4 pm will be processed next work day

Special Instructions





**A & R Laboratories**  
1650-C S. Grove Avenue  
Ontario, CA 91761  
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office@arlaboratories.com

**Chain of Custody Record**

A & R Work Order #: **2009-00227**

Page 2 of 2

\*CalScience\*

Project No: 33414, 21		Project Name: CITY OF CHANSE, COOP. YARD, 637 W. STURCK AVE.																					
Project Manager: Jennifer Iñiguez		Phone: 951-779-0310 Fax: 951-779-0344																					
Customer Name: (Report and Billing) A & R Laboratories		Street Address: (Report and Billing) 1650 S. Grove Ave., Ste. C																					
Email: jennifer.iniguez@arlaboratories.com		City, State Zip: Ontario, CA 91761																					
Lab # (lab use only)	Sample ID (as it should appear on report)	Grab/Comp	Date sampled	Time sampled	Sample matrix	Container # & Type	Analyses Requested (circle appropriate)																
	SB-5-0.5		9/25/2020	12:28	Soil	i G	Preserved	Micro: Plate Cnt., Coliform, E-Coli	Chem: BOD, TSS, TDS, pH, EC	Chem: Cyanide, Ammonia, Oil & Grease	IC: Br, SO4, PO4, NO3, NO2, Cl	Metals: Title 22 (CAM17 Metals) or RCRA	LUFT Gas or 8015 GRO or C4-C12	LUFT Diesel or 8015 DRO or C13-C40	VOCs by GCMS: 8260 or 624	VOCs by GCMS: BTEX, OXYs	SVOCs: 8270 or 625	Pest. &/or PCBs: 608 or 8081/8082	CAM16 by 6020	As by 6020	Turn Around		
	SB-5-1.5			12:29																		<input type="radio"/> 24hr RUSH* <input type="radio"/> 48hr RUSH* <input checked="" type="radio"/> Normal <input type="radio"/> Other	
	SB-5-2.5			12:30																		*PRIOR approval, additional fee, work received after 4 pm will be processed next work day.	
	SB-6-0.5			11:37																		Special Instructions	
	SB-7-1			9:04																			
	SB-7-1.5			9:05																			
1) Relinquished By: (Sampler's Signature) <i>J. Iñiguez</i>		Date: 9/23/20	Time: 14:00	3) Relinquished By:		Date:	Time:	5) Relinquished By:		Date:	Time:	7) Relinquished By:		Date:	Time:	9) Relinquished By:		Date:	Time:	11) Relinquished By:		Date:	Time:
2) Received By:		Date:	Time:	4) Received By:		Date:	Time:	6) Received for Laboratory by:		Date:	Time:	8) Received for Laboratory by:		Date:	Time:	10) Received for Laboratory by:		Date:	Time:	12) Received for Laboratory by:		Date:	Time:
Samples Chilled <input checked="" type="radio"/> Yes <input type="radio"/> No		Custody Seals <input checked="" type="radio"/> Yes <input type="radio"/> No		Samples Intact <input checked="" type="radio"/> Yes <input type="radio"/> No		Temp C <input type="radio"/> Yes <input type="radio"/> No		Delivery <input checked="" type="radio"/> Courier <input type="radio"/> Walk In		Report Delivery Formats <input type="radio"/> Paper <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> XLS		EDD, Type <input type="checkbox"/> EDD, EPA Site ID <input type="checkbox"/>		Disposal <input type="radio"/> Return <input checked="" type="radio"/> Lab Disposal		Unless other arrangements are made samples will be disposed of 60 days after receipt.							
Laboratory Notes: Please cc: jenny.jiang@arlaboratories.com																							

\*CalScience\*



# A & R Laboratories

1650-C S. Grove Avenue  
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office@arlaboratories.com

## Chain of Custody Record

A &amp; R Work Order #:

# 2009-00227

Page 1 of 2

Project No:		Project Name:		Analyses Requested (circle appropriate)												Turn Around					
		<b>Monitoring Point 001</b>														<input type="radio"/> 24hr RUSH* <input type="radio"/> 48hr RUSH* <input checked="" type="radio"/> Normal <input type="radio"/> Other _____					
Project Manager:		Phone:		Fax:																	
<b>Jennifer Iniguez</b>		<b>951-779-0310</b>		<b>951-779-0344</b>																	
Customer Name: (Report and Billing)				Street Address: (Report and Billing)																	
<b>A &amp; R Laboratories</b>				<b>1650 S. Grove Ave., Ste. C</b>																	
Email:				City, State Zip																	
jennifer.iniguez@arlaboratories.com				Ontario, CA 91761																	
Lab #	Sample ID	Grab/Comp	Date sampled	Time sampled	Sample matrix	Container # & Type	Preserved	Micro: Plate Cnt., Coliform, E-Coli	Chem: BOD, TSS, TDS, pH, EC	Chem: Cyanide, Ammonia, Oil & Grease	IC: Br, SO4, PO4, NO3, NO2, Cl	Metals: Title 22 (CAM17 Metals) or RCRA	LUFT Gas or 8015 GRO or C4-C12	LUFT Diesel or 8015 DRO or C13-C40	VOCs by GC/MS: 8260 or 624	VOCs by GC/MS: BTEX, OXYs	SVOCS: 8270 or 625	Pest. &/or PCBs: 608 or 8081/8082	CAM16 by 6020	As by 6020	Special Instructions
1	SB-1-0.5		9/25/2020	10:44	Soil	I G													X		
2	SB-1-1		9/28/20	10:45																X	
3	SB-2-0.5			9:45															X		
4	SB-2-1			9:46															X		
5	SB-3-0.5			14:06															X		
6	SB-3-1.5			14:07															X		
7	SB-3-2.5			14:08																X	
8	SB-4-0.5			13:25															X		
9	SB-4-2			13:26															X		
10	SB-4-3.5			13:27															X		

570-39588 Chain of Custody

1) Relinquished by: (Sampler's Signature)	Date:	Time:	3) Relinquished by:	Date:	Time:	5) Relinquished by:	Date:	Time:
<i>Debra Valle</i>	9/28/20	14:00	<i>[Signature]</i>	9/28/20	14:00			
2) Received by:	Date:	Time:	4) Received by:	Date:	Time:	6) Received for Laboratory by:	Date:	Time:
<i>[Signature]</i>	9/28/20	14:00	<i>[Signature]</i>	9/28/20	14:00			

**Samples Chilled**

☒ Yes ☐ No

☐ From Field

**Custody Seals**

☐ Yes ☒ No

**Samples Intact**

☒ Yes ☐ No

**Temp C**

**Delivery**

☒ Courier ☐ Walk In

☐ UPS/Fed Ex

**Report Delivery Formats**

☐ Paper ☒ EMAIL ☐ XLS

☐ EDD, Type \_\_\_\_\_

☐ EDF, EPA Site ID \_\_\_\_\_

Laboratory Notes: Please cc: jenny.jiang@arlaboratories.com

4.5/4.1 SC6

CHEMISTRY · MICROBIOLOGY · FOOD SAFETY · CONSUMER PRODUCTS · MOBILE LABORATORIES · COSMETICS

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.

\*CalScience\*



# A & R Laboratories

1650-C S. Grove Avenue  
Ontario, CA 91761  
V: 951.779.0310 • 800.798.9336 F: 951.779.0344  
office@arlaboratories.com

## Chain of Custody Record

A & R Work Order #:  
**2009-00227**

Page 2 of 2

Project No:		Project Name:		Analyses Requested (circle appropriate)												Turn Around					
		<b>Monitoring Point 001</b>														<input type="radio"/> 24hr RUSH* <input type="radio"/> 48hr RUSH* <input checked="" type="radio"/> Normal <input type="radio"/> Other _____					
Project Manager:		Phone:		Fax:														*PRIOR approval, additional fee, work received after 4 pm will be processed next work day. <b>Special Instructions</b>			
<b>Jennifer Iniguez</b>		<b>951-779-0310</b>		<b>951-779-0344</b>																	
Customer Name: (Report and Billing)		Street Address: (Report and Billing)																			
<b>A &amp; R Laboratories</b>		<b>1650 S. Grove Ave., Ste. C</b>																			
Email:		City, State Zip																			
jennifer.iniguez@arlaboratories.com		Ontario, CA 91761																			
Lab #	Sample ID	Grab/Comp	Date sampled	Time sampled	Sample matrix	Container # & Type	Preserved	Micro: Plate Cnt., Coliform, E-Coli	Chem: BOD, TSS, TDS, pH, EC	Chem: Cyanide, Ammonia, Oil & Grease	IC: Br, SO4, PO4, NO3, NO2, Cl	Metals: Title 22 (CAM17 Metals) or RCRA	LUFT Gas or 8015 GRO or C4-C12	LUFT Diesel or 8015 DRO or C13-C40	VOCs by GC/MS: 8260 or 624	VOCs by GC/MS: BTEX, OXYs	SVOCs: 8270 or 625	Pest. &/or PCBs: 608 or 808/18082	CAM16 by 6020	As by 6020	
11	SB-5-0.5		9/25/2020	12:28	Soil	i G													X		
12	SB-5-1.5			12:29															X		
13	SB-5-2.5			12:30																X	
14	SB-6-0.5			11:37																X	
15	SB-7-1			9:04														X			
16	SB-7-1.5			9:05															X		
1) Relinquished by: (Sampler's Signature)		Date:	Time:	3) Relinquished by:		Date:	Time:	5) Relinquished by:		Date:	Time:	6) Received for Laboratory by:		Date:	Time:	Disposal					
<i>Dalia Valle</i>		9/23/20	14:00													<input type="radio"/> Return <input checked="" type="radio"/> Lab Disposal					
2) Received by:		Date:	Time:	4) Received by:		Date:	Time:	6) Received for Laboratory by:		Date:	Time:					Unless other arrangements are made samples will be disposed of 60 days after receipt.					
<i>Jenny</i>		9/28/20	14:00																		

This section is to be completed by laboratory personnel:

Samples Chilled

☒ Yes ☐ No

☐ From Field

Custody Seals

☐ Yes ☒ No

Samples Intact

☒ Yes ☐ No

Temp C

Delivery

☒ Courier ☐ Walk In

☐ UPS/Fed Ex

Report Delivery Formats

☐ Paper ☒ EMAIL ☐ XLS

☐ EDD, Type \_\_\_\_\_

☐ EDF, EPA Site ID \_\_\_\_\_

Laboratory Notes: Please cc: jenny.jiang@arlaboratories.com

CHEMISTRY · MICROBIOLOGY · FOOD SAFETY · CONSUMER PRODUCTS · MOBILE LABORATORIES · COSMETICS

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.

## Login Sample Receipt Checklist

Client: A&R Laboratories

Job Number: 570-39588-1

SDG Number: 33616.21

**Login Number: 39588**

**List Number: 1**

**Creator: Soriano, Precy**

**List Source: Eurofins Calscience**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Client Name <u>LOR Geotechnical Group, Inc.</u>						<input checked="" type="checkbox"/> Chilled		Analyses Requested												Turn Around Time Requested	
E-mail <u>mhunt@lorgeo.com</u>						<input checked="" type="checkbox"/> Intact														<input type="checkbox"/> Rush 8 12 24 48 Hours  <input checked="" type="checkbox"/> Normal	
Address <u>6121 Quail Valley Court, Riverside, CA 92507</u>						<input type="checkbox"/> Seal															
Report Attention <u>Mathew Hunt</u>		Phone # <u>951-653-1760</u>		Sampled By <u>Mathew Hunt</u>																	
Project No./ Name <u>33616.21</u>		Project Site <u>City of Orange Corp. Yard, 637 W. Struck Ave.</u>																			
Lab #	Client Sample ID	Sample Collection		Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA 6020/7471A Metals	EPA 6020 As	Remarks			
(Lab use)		Date	Time																		
1	SB-1-0.5	9/25/20	1044	Soil	Ice	1 Plastic Tube	X						X			X					
2	SB-1-1		1045								X					X					
	SB-1-2		1046																		
	SB-1-3		1047																		
	SB-1-5		1048																		
	SB-1-7		1051																		
	SB-1-10		1053																		
	SB-1-12		1055																		
3	SB-2-0.5		0945				X						X			X					
4	SB-2-1		0946								X					X					
	SB-2-2		0947																		
	SB-2-3		0948																		
	SB-2-5		0949																		
	SB-2-7		0951																		
	SB-2-10		0953																		

Relinquished By Mathew Hunt Company LOR Date 9/25/20 Time 1701  
 Relinquished By \_\_\_\_\_ Company \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Received By Chris A-R Company A-R Date 9-25-20 Time 1701  
 Received By \_\_\_\_\_ Company \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code:	DW=Drinking Water GW=Ground Water WW=Waste Water SD=Solid Waste	SL=Sludge SS=Soil/Sediment AR=Air PP=Pure Product	Preservative Code	IC=Ice HC=HCl HN=HNO <sub>3</sub>	SH=NaOH ST=Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> HS=H <sub>2</sub> SO <sub>4</sub>	* Sample Container Types: T=Tedlar Air Bag G=Glass Container ST= Steel Tube	B= Brass Tube P=Plastic Bottle V=VOA Vial	E= EnCore
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Client Name <b>LOR Geotechnical Group, Inc.</b>							<input checked="" type="checkbox"/> Chilled		<b>Analyses Requested</b> EPA8260B (VOCs & Oxygenates) EPA8260B(BTEX & Oxygenates) LUFT / 8015 (Gasoline) LUFT / 8015 (Diesel) EPA8081A (Organochlorine Pesticides) EPA 8082 (PCBs) EPA 8015M (Carbon Chain C4-C40) EPA 6010B/7000 (CAM 17 Metals) Micro: Plate Cnt., Coliform, E-Coli <b>EPA 6020/7471A Metals</b> <b>EPA 6020 AS</b>										Turn Around Time Requested		
E-mail <b>MHUNT@LORGED.COM</b>							<input checked="" type="checkbox"/> Intact												<input type="checkbox"/> Rush 8 12 24 48 Hours		
Address <b>*SAME AS PREVIOUS PAGE*</b>							<input type="checkbox"/> Seal														
Report Attention			Phone #		Sampled By																
Fax: #																					
Project No./ Name <b>33616-21</b>			Project Site																		
Lab # (Lab use)	Client Sample ID	Sample Collection		Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA 6020/7471A Metals	EPA 6020 AS	Remarks			
	SB-2-12	9/25/20	0955	Soil	Ice	1 Plastic Tube															
5	SB-3-0.5		1406				X						X			X					
6	SB-3-6.5		1407				X						X			X					
7	SB-3-2.5		1408								X						X				
	SB-3-3.5		1409																		
	SB-3-5		1410																		
	SB-3-7		1411																		
	SB-3-10		1413																		
	SB-3-12		1415																		
8	SB-4-0.5		1325				X						X			X					
9	SB-4-2		1326				X						X			X					
10	SB-4-3.5		1327								X						X				
	SB-4-5		1332																		
	SB-4-7		1334																		
	SB-4-12		1336																		
Relinquished By <b>M. Hunt</b>		Company <b>LOR</b>		Date <b>9/25/20</b>	Time <b>1701</b>	Received By <b>[Signature]</b>		Company <b>A-R</b>		Date <b>9-25-20</b>	Time <b>1701</b>	Note: Samples are discarded 30 days after results are reported unless other arrangements are made.									
Relinquished By		Company		Date	Time	Received By		Company		Date	Time										

Matrix Code:

DW=Drinking Water  
GW=Ground Water  
WW=Waste Water  
SD=Solid Waste

SL=Sludge  
SS=Soil/Sediment  
AR=Air  
PP=Pure Product

Preservative Code

IC=Ice  
HC=HCl  
HN=HNO<sub>3</sub>

SH=NaOH  
ST=Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>  
HS=H<sub>2</sub>SO<sub>4</sub>

\* Sample Container Types:

T=Tedlar Air Bag  
G=Glass Container  
ST= Steel Tube

B= Brass Tube  
P=Plastic Bottle  
V=VOA Vial

E= EnCore



Client Name <b>LOR Geotechnical Group, Inc.</b>							<input checked="" type="checkbox"/> Chilled										Analyses Requested		Turn Around Time Requested <input type="checkbox"/> Rush 8 12 24 48 Hours <input checked="" type="checkbox"/> Normal						
E-mail <b>MHUNT@LORGEO.COM</b>							<input checked="" type="checkbox"/> Intact																		
Address <b>*SAME AS PREVIOUS PAGE*</b>							<input type="checkbox"/> Seal																		
Report Attention		Phone #		Fax: #		Sampled By																			
Project No./ Name <b>33616.21</b>		Project Site																							
Lab # (Lab use)	Client Sample ID	Sample Collection		Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA6020/7411A Metals	EPA6020 AS	Remarks							
11	SB-5-0.5	9/25/20	1228	Soil	Ice	1 Plastic Tube	X						X			X									
12	SB-5-1.5		1229				X						X			X									
13	SB-5-2.5		1230								X						X								
	SB-5-3.5		1231																						
	SB-5-5		1232																						
	SB-5-7		1235																						
	SB-5-10		1237																						
	SB-5-12		1239																						
14	SB-6-0.5		1137								X						X								
	SB-6-1.5		1138																						
	SB-6-3		1139																						
	SB-6-5		1140																						
	SB-6-7		1143																						
	SB-6-10		1145																						
	SB-6-12		1147																						
Relinquished By <b>M. Hunt</b>		Company <b>LOR</b>		Date <b>9/25/20</b>	Time <b>1701</b>	Received By <b>[Signature]</b>		Company <b>A&amp;R</b>		Date <b>9/25/20</b>	Time <b>1701</b>	Note: Samples are discarded 30 days after results are reported unless other arrangements are made.													
Relinquished By		Company		Date	Time	Received By		Company		Date	Time														

Matrix Code:

DW=Drinking Water  
GW=Ground Water  
WW=Waste Water  
SD=Solid Waste

SL=Sludge  
SS=Soil/Sediment  
AR=Air  
PP=Pure Product

Preservative Code

IC=Ice  
HC=HCl  
HN=HNO<sub>3</sub>

SH=NaOH  
ST=Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>  
HS=H<sub>2</sub>SO<sub>4</sub>

\* Sample Container Types:

T=Tedlar Air Bag  
G=Glass Container  
ST= Steel Tube

B= Brass Tube  
P=Plastic Bottle  
V=VOA Vial

E= EnCore



# ARL

## A & R Laboratories

1650 S. Grove Ave., Ste C, Ontario, CA 91761  
Tel: 951-779-0310 / 909-781-6335 Fax: 951-779-0344  
E-mail: office@arlaboratories.com

## CHAIN OF CUSTODY

A & R Work Order #:

2009-227

Page 4 of 4

Client Name <b>LOR Geotechnical Group, Inc.</b>						<input checked="" type="checkbox"/> Chilled		<b>Analyses Requested</b> EPA8260B (VOCs & Oxygenates) EPA8260B(BTEX & Oxygenates) LUFT / 8015 (Gasoline) LUFT / 8015 (Diesel) EPA8081A (Organochlorine Pesticides) EPA 8082 (PCBs) EPA 8015M (Carbon Chain C4-C40) EPA 6010B/7000 (CAM 17 Metals) Micro: Plate Cnt., Coliform, E-Coli <b>EPA 6020/7411A Metals</b> <b>EPA 6020 AS</b> <b>EPA 600B Boron</b>										Turn Around Time Requested		
E-mail <b>M.HUNT@LORGEO.COM</b>						<input checked="" type="checkbox"/> Intact												<input type="checkbox"/> Rush 8 12 24 48 Hours		
Address <b>*SAME AS PREVIOUS PAGE*</b>						<input type="checkbox"/> Seal												<input checked="" type="checkbox"/> Normal		
Report Attention		Phone #		Sampled By																
Fax: #																				
Project No./ Name <b>33616.21</b>		Project Site																		
Lab # (Lab use)	Client Sample ID	Sample Collection		Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA 6020/7411A Metals	EPA 6020 AS	EPA 600B Boron	Remarks	
		Date	Time																	
15	SB-7-1	9/25/20	0904	Soil	Ice	1 Plastic Tube	X						X			X				
16	SB-7-1.5		0905								X						X			
	SB-7-2.5		0906																	
	SB-7-5		0907																	
	SB-7-7		0909																	
	SB-7-10		0911																	
	SB-7-12		0913																	
17	SB-8-1.5		0830															X		
18	SB-8-3		0836															X		
	SB-8-5		0839															X		
19	SB-9-1.5		0750															X		
20	SB-9-3		0758															X		
	SB-9-5		0805															X		
Relinquished By <b>M.Hunt</b>		Company <b>LOR</b>		Date <b>9/25/20</b>	Time <b>1701</b>	Received By <b>[Signature]</b>		Company <b>AR</b>		Date <b>9-25-20</b>	Time <b>1701</b>	Note: Samples are discarded 30 days after results are reported unless other arrangements are made.								
Relinquished By		Company		Date	Time	Received By		Company		Date	Time									

Matrix Code:

DW=Drinking Water  
GW=Ground Water  
WW=Waste Water  
SD=Solid Waste

SL=Sludge  
SS=Soil/Sediment  
AR=Air  
PP=Pure Product

Preservative Code

IC=Ice  
HC=HCl  
HN=HNO<sub>3</sub>

SH=NaOH  
ST=Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>  
HS=H<sub>2</sub>SO<sub>4</sub>

\* Sample Container Types:

T=Tedlar Air Bag  
G=Glass Container  
ST= Steel Tube

B= Brass Tube  
P=Plastic Bottle  
V=VOA Vial

E= EnCore





## Sample Acceptance Checklist

CLIENT: LDR GEDTECH

WORK ORDER NUMBER: 2009-00227

**Temperature:** (Criteria: 0.0°C-6.0°C)

Sample Temp. (w/CF) °C(w/CF) 3.0°C

- ☐ Sample(s) outside temperature criteria: PM contacted by :  
☐ Sample(s) outside temperature criteria, but received on ice/chilled on same day of sampling.  
☐ Sample(s) received at ambient temperature; placed on ice for transport by courier.  
Ambient Temperature ☐ Air ☐ Filter

**CUSTODY SEAL:**

Cooler ☐ Present and Intact ☐ Present and Not Intact ☒ Not Present  
Sample(s) ☐ Present and Intact ☐ Present and Not Intact ☒ Not Present

**Sample Condition:**

	Yes	No	N/A
Was a COC received	✓		
Were sample IDs present?	✓		
Were sampling dates & times present?	✓		
Was a relinquished signature present?	✓		
Were the tests required clearly indicated?	✓		
Were all samples sealed in plastic bags?		✓	
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were correct containers used for the tests required?	✓		
Was a sufficient amount of samples sent for tests indicated?	✓		
Was there headspace in VOA vials?			✓
Were the containers labeled with correct preservatives?			✓

**Explanations/Comments:**

**Notification:**

For discrepancies, how was the Project Manager notified? Verbal

Verbal: PM Initials: \_\_\_\_\_ Data/Time: \_\_\_\_\_

Email: Send to: \_\_\_\_\_ Data/Time: \_\_\_\_\_

Project Manager's response:

Completed By: [Signature]

Date: 9-25-20



# A & R Laboratories, Inc.

1650 S. GROVE AVE., SUITE C

ONTARIO, CA 91761

951-779-0310

www.arlaboratories.com

FAX 951-779-0344

office@arlaboratories.com

FDA#	2030513
LA City#	10261
ELAP#s	2789
	2790
	2122

CHEMISTRY · MICROBIOLOGY · FOOD SAFETY · MOBILE LABORATORIES  
FOOD · COSMETICS · WATER · SOIL · SOIL VAPOR · WASTES

## CASE NARRATIVE

Authorized Signature Name / Title (print)

Ken Zheng, President

Signature / Date

Ken Zheng, President  
10/09/2020 14:30:59

Laboratory Job No. (Certificate of Analysis No.)

2010-00041

Project Name / No.

Add'l - CITY OF ORANGE CORP. YARD / 33616.21

Dates Sampled (from/to)

09/25/20 To 09/25/20

Dates Received (from/to)

09/25/20 To 09/25/20

Dates Reported (from/to)

10/09/20 To 10/9/2020

Chains of Custody Received

Yes

Comments:

### Subcontracting

#### Organic Analyses

1 EPA 7196A sample(s) reported by technician ECI were contracted to ENVIRO-CHEM, INC

All results for sub-contracted analyses may be sent separately

#### Inorganic Analyses

1 EPA 6010B sample(s) reported by technician CEL were contracted to Eurofins Calscience

2 EPA 6020 sample(s) reported by technician CEL were contracted to Eurofins Calscience

All results for sub-contracted analyses may be sent separately

### Sample Condition(s)

All samples intact

### Positive Results (Organic Compounds)

None



# A & R Laboratories, Inc.

1650 S. GROVE AVE., SUITE C  
 ONTARIO, CA 91761  
 951-779-0310 FAX 951-779-0344  
 www.arlaboratories.com office@arlaboratories.com

FDA#	2030513
LA City#	10261
ELAP#s	2789
	2790
	2122

CHEMISTRY · MICROBIOLOGY · FOOD SAFETY · MOBILE LABORATORIES  
 FOOD · COSMETICS · WATER · SOIL · SOIL VAPOR · WASTES

## CERTIFICATE OF ANALYSIS

2010-00041

LOR GEOTECHNICAL GROUP, INC.  
 MATHEW HUNT  
 6121 QUAIL VALLEY COURT  
 RIVERSIDE, CA 92507

Date Reported 10/09/20  
 Date Received 09/25/20  
 Invoice No. 89932  
 Cust # 1422  
 Permit Number  
 Customer P.O.

Project: Addt'l - CITY OF ORANGE CORP. YARD / 33616.21

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 <b>SB-7-1</b> Sample Matrix: <b>Soil</b>	Date & Time Sampled: 09/25/20 @ 9:04							
Sample: 002 <b>SB-7-2.5</b> Sample Matrix: <b>Soil</b>	Date & Time Sampled: 09/25/20 @ 9:06							
Metals	SEE ATTACHED			EPA 6020	1.0		10/08/20	CEL
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		10/06/20	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	10/06/20	KZ
Sample: 003 <b>SB-7-5</b> Sample Matrix: <b>Soil</b>	Date & Time Sampled: 09/25/20 @ 9:07							
Metals	SEE ATTACHED			EPA 6020	1.0		10/08/20	CEL
[Mercury]								
Mercury Digestion	Complete			EPA 7471A	1.0		10/06/20	KZ
Mercury	<0.20		mg/Kg	EPA 7471A	1.0	0.20	10/06/20	KZ

Respectfully Submitted:

*Ken Zheng*

Ken Zheng - Lab Director

### QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL.  
 B1 = BOD dilution water is over specifications . The reported result may be biased high.  
 D = Surrogate recoveries are not calculated due to sample dilution.  
 E = Estimated value; Value exceeds calibration level of instrument.  
 H = Analyte was prepared and/or analyzed outside of the analytical method holding time  
 I = Matrix Interference.  
 J = Analyte concentration detected between RL and MDL.  
 Q = One or more quality control criteria did not meet specifications. See Comments for further explanation.  
 S = Customer provided specification limit exceeded.

### ABBREVIATIONS

DF = Dilution Factor  
 RL = Reporting Limit, Adjusted by DF  
 MDL = Method Detection Limit, Adjusted by DF  
 Qual = Qualifier  
 Tech = Technician



**A & R Laboratories, Inc.**

1650 S. GROVE AVE., SUITE C  
ONTARIO, CA 91761  
951-779-0310      FAX 951-779-0344  
www.arlaboratories.com      office@arlaboratories.com

FDA#	2030513
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*As regulatory limits change frequently, A & R Laboratories advises the recipient of this report to confirm such limits with the appropriate federal, state, or local authorities before acting in reliance on the regulatory limits provided.*

*For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.*



# A & R Laboratories, Inc.

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 951-779-0310 FAX 951-779-0344  
 www.arlaboratories.com office@arlaboratories.com

FDA#	2030513
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## QUALITY CONTROL DATA REPORT

LOR GEOTECHNICAL GROUP, INC.  
 RIVERSIDE, CA 92507

2010-00041

Date Reported 10/09/2020  
 Date Received 09/25/2020  
 Date Sampled 09/25/2020  
 Invoice No. 89932  
 Customer # 1422  
 Customer P.O.

Project: Addt'l - CITY OF ORANGE CORP. YARD / 33616.21

Method # EPA 7471A

QC Reference # 91953 Date Analyzed: 10/6/2020 Technician: KZ

Samples 002 003

### Results

	LCS %REC	LCS %DUP	LCS %RPD	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
Mercury	88	94	6	100	94	6

### Control Ranges

LCS %REC	LCS %RPD	SPIKE %RPD
75 - 125	0 - 25	0 - 25

No method blank results were above reporting limit

Respectfully Submitted:

*Ken Zheng*

Ken Zheng - President

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.

**Enviro – Chem, Inc.**

**1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907**

Date: October 6, 2020

Ms. Jennifer Iniguez  
A&R Laboratories  
1650 S. Grove Avenue Suite C  
Ontario, CA 91761  
Tel: (951) 779-0310 E-Mail: Jennifer.Iniguez@ARLaboratories.com

Project: **City of Orange Corp. Yard / WO #2010-00041**  
Project No.: **33616.21**  
Lab I.D.: **201005-16**

Dear Ms. Iniguez:

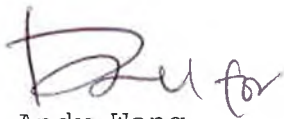
The **analytical results** for the soil sample, received by our lab on October 5, 2020, are attached. The sample was received chilled, intact, and accompanying chain of custody.

Enviro-Chem appreciates the opportunity to provide you and your company this and other services. Please do not hesitate to call us if you have any questions.

Sincerely,



Curtis Desilets  
Vice President/Program Manager



Andy Wang  
Laboratory Manager



**Enviro - Chem, Inc.**

**1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907**

**LABORATORY REPORT**

CUSTOMER: **A&R Laboratories**  
1650 S. Grove Avenue, Suite C  
Ontario, CA 91761  
Tel: (951) 779-0310  
E-Mail: [Jennifer.Iniguez@ARLaboratories.com](mailto:Jennifer.Iniguez@ARLaboratories.com)

PROJECT: **City of Orange Corp. Yard / WO #2010-00041**

PROJECT NO.: **33616.21**

MATRIX: **SOIL**

DATE COLLECTED: **09/25/20**

REPORTED TO: **MS. JENNIFER INIGUEZ**

DATE RECEIVED: **10/05/20**

DATE ANALYZED: **10/05/20**

DATE REPORTED: **10/06/20**

**HEXAVALENT CHROMIUM (CHROMIUM VI) ANALYSIS**

**METHOD: EPA 7196A**

**UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM**

SAMPLE I.D.	LAB I.D.	RESULT	DF
SB-7-1	201005-16	ND	1
METHOD BLANK	---	ND	1
	PQL	0.20	

**COMMENTS:**

DF = DILUTION FACTOR

PQL = PRACTICAL QUANTITATION LIMIT

ACTUAL DETECTION LIMIT = DF X PQL

ND = NON-DETECTED OR BELOW THE ACTUAL DETECTION LIMIT

DATA REVIEWED AND APPROVED BY: 

CAL-DHS ELAP CERTIFICATE No.: 1555

Enviro-Chem, Inc.

1214 E. Lexington Avenue, Pomona, CA 91766

Tel (909)590-5905

Fax (909)590-5907

Matrix: SOLID/SLUDGE

## QA/QC Report

Analysis	Units	Date Analyzed	Sample I.D.	S.R.	Duplicate	% RPD	ACP %RPD
Alkalinity	mg/Kg					0.0%	0-20
Residual Chlorine	mg/Kg					0.0%	0-20
Density	g/mL					0.00%	0-20
EC	umhos/cm					0.0%	0-20
pH	pH units					0.00%	0-20
TDS	mg/L					0.0%	0-20
TSS	mg/Kg					0.0%	0-20
Resistivity	ohms					0.0%	0-20
% MOISTURE	%					0.0%	0-20
BTU	BTU/lb					0.0%	0-20
Salinity	S					0.00%	0-20

%RPD = Relative Percent Difference

ACP %RPD = Acceptable Relative Percent Difference

Analysis	Units	Date Analyzed	Sample I.D.	Spk Conc	S.R.	ACP %RPD	ACP %RC	MS	MS %RC	MSD	MSD %RC	% RPD
Acidity	mg/Kg				0	0	80-120					#VALUE!
Ammonia as N	mg/Kg			50.0	0.000	0-20	80-120					#VALUE!
MBAS	mg/Kg			6.00	0.0	0-20	80-120					#VALUE!
Chloride	mg/Kg			200	30.0	0-20	80-120					#VALUE!
COD	mg/Kg			500	0.0	0-20	80-120					#VALUE!
Cr VI	mg/Kg	10/05/20	201002-28	4.00	0.00	0-20	80-120	3.45	86%	3.52	88%	1.8%
Cyanide	mg/Kg			10.0	0.0	0-20	80-120					#VALUE!
Fluoride	mg/Kg			10.0	0.000	0-20	80-120					#VALUE!
Nitrate as N	mg/Kg			4.0	0.00	0-20	80-120					#VALUE!
Nitrite as N	mg/Kg			4.0	0.00	0-20	80-120					#VALUE!
Oil and Grease	mg/Kg			667	0	0-20	80-120					#VALUE!
PHOSPHATE	mg/Kg			100.0	0.0	0-20	80-120					#VALUE!
Sulfate	mg/Kg			200	36.4	0-20	80-120					#VALUE!
Sulfide	mg/Kg			3.00	0.0	0-20	80-120					#VALUE!
TRPH	mg/kg			667	0.0	0-20	80-120					#VALUE!
Sulfide, Reactive	mg/Kg			3.00	0.0	0-20	80-120					#VALUE!
EPA 1664A	mg/Kg			500	0	0-20	80-120					#VALUE!

S.R. = Sample Results

%RC = Percent Recovery

ACP %RC = Accepted Percent Recovery

Analyst Signature: \_\_\_\_\_

Final Reviewer: \_\_\_\_\_

Pink Copy - Client Copy



## ANALYTICAL REPORT

Eurofins Calscience LLC  
7440 Lincoln Way  
Garden Grove, CA 92841  
Tel: (714)895-5494

Laboratory Job ID: 570-39588-2

Laboratory Sample Delivery Group: 33616.21

Client Project/Site: City of Orange Corp Yard 637 W Struck Ave.

**For:**

A&R Laboratories  
1650-C S. Grove Ave  
Ontario, California 91761

Attn: Jennifer Iniguez



Authorized for release by:  
10/7/2020 3:28:38 PM

Don Burley, Senior Project Manager  
(714)895-5494

[Donald.Burley@eurofinset.com](mailto:Donald.Burley@eurofinset.com)

### LINKS

Review your project  
results through

**TotalAccess**

Have a Question?



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[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

*The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*



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## Definitions/Glossary

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-2  
SDG: 33616.21

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

## Case Narrative

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-2  
SDG: 33616.21

**Job ID: 570-39588-2**

**Laboratory: Eurofins Calscience LLC**

### Narrative

#### Job Narrative 570-39588-2

### Comments

No additional comments.

### Receipt

The samples were received on 9/28/2020 2:00 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.1° C.

### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



## Detection Summary

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-2  
SDG: 33616.21

**Client Sample ID: SB-7-1**

**Lab Sample ID: 570-39588-15**

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chromium	1.28		0.200	mg/L	20		6020	STLC Citrate

This Detection Summary does not include radiochemical test results.

Eurofins Calscience LLC

# Client Sample Results

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-2  
SDG: 33616.21

## Method: 6020 - Metals (ICP/MS) - STLC Citrate

Client Sample ID: SB-7-1  
Date Collected: 09/25/20 09:04  
Date Received: 09/28/20 14:00

Lab Sample ID: 570-39588-15  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	1.28		0.200	mg/L		10/07/20 12:10	10/07/20 13:50	20

# QC Sample Results

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-2  
SDG: 33616.21

## Method: 6020 - Metals (ICP/MS)

Lab Sample ID: LB4 570-99589/1-D ^20

Matrix: Solid

Analysis Batch: 100099

Client Sample ID: Method Blank

Prep Type: STLC Citrate

Prep Batch: 100082

Analyte	LB4 Result	LB4 Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		0.200	mg/L		10/07/20 12:10	10/07/20 13:47	20

Lab Sample ID: LCS 570-99589/2-D ^20

Matrix: Solid

Analysis Batch: 100099

Client Sample ID: Lab Control Sample

Prep Type: STLC Citrate

Prep Batch: 100082

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	5.00	5.287		mg/L		106	80 - 120

Lab Sample ID: LCSD 570-99589/3-D ^20

Matrix: Solid

Analysis Batch: 100099

Client Sample ID: Lab Control Sample Dup

Prep Type: STLC Citrate

Prep Batch: 100082

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Chromium	5.00	5.337		mg/L		107	80 - 120	1	20

Lab Sample ID: 570-39588-15 MS

Matrix: Solid

Analysis Batch: 100099

Client Sample ID: SB-7-1

Prep Type: STLC Citrate

Prep Batch: 100082

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	1.28		5.00	6.553		mg/L		105	73 - 133

Lab Sample ID: 570-39588-15 MSD

Matrix: Solid

Analysis Batch: 100099

Client Sample ID: SB-7-1

Prep Type: STLC Citrate

Prep Batch: 100082

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Chromium	1.28		5.00	6.600		mg/L		106	73 - 133	1	11

# QC Association Summary

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-2  
SDG: 33616.21

## Metals

### Leach Batch: 99589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-39588-15	SB-7-1	STLC Citrate	Solid	CA WET Citrate	
LB4 570-99589/1-D ^20	Method Blank	STLC Citrate	Solid	CA WET Citrate	
LCS 570-99589/2-D ^20	Lab Control Sample	STLC Citrate	Solid	CA WET Citrate	
LCSD 570-99589/3-D ^20	Lab Control Sample Dup	STLC Citrate	Solid	CA WET Citrate	
570-39588-15 MS	SB-7-1	STLC Citrate	Solid	CA WET Citrate	
570-39588-15 MSD	SB-7-1	STLC Citrate	Solid	CA WET Citrate	

### Prep Batch: 100082

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-39588-15	SB-7-1	STLC Citrate	Solid	Dilution	99589
LB4 570-99589/1-D ^20	Method Blank	STLC Citrate	Solid	Dilution	99589
LCS 570-99589/2-D ^20	Lab Control Sample	STLC Citrate	Solid	Dilution	99589
LCSD 570-99589/3-D ^20	Lab Control Sample Dup	STLC Citrate	Solid	Dilution	99589
570-39588-15 MS	SB-7-1	STLC Citrate	Solid	Dilution	99589
570-39588-15 MSD	SB-7-1	STLC Citrate	Solid	Dilution	99589

### Analysis Batch: 100099

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-39588-15	SB-7-1	STLC Citrate	Solid	6020	100082
LB4 570-99589/1-D ^20	Method Blank	STLC Citrate	Solid	6020	100082
LCS 570-99589/2-D ^20	Lab Control Sample	STLC Citrate	Solid	6020	100082
LCSD 570-99589/3-D ^20	Lab Control Sample Dup	STLC Citrate	Solid	6020	100082
570-39588-15 MS	SB-7-1	STLC Citrate	Solid	6020	100082
570-39588-15 MSD	SB-7-1	STLC Citrate	Solid	6020	100082

# Lab Chronicle

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-2  
SDG: 33616.21

**Client Sample ID: SB-7-1**

**Date Collected: 09/25/20 09:04**

**Date Received: 09/28/20 14:00**

**Lab Sample ID: 570-39588-15**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
STLC Citrate	Leach	CA WET Citrate			49.99 g	500 mL	99589	10/05/20 11:48	QZW6	ECL 3
STLC Citrate	Prep	Dilution			5 mL	50 mL	100082	10/07/20 12:10	WL8G	ECL 1
STLC Citrate	Analysis	6020		20			100099	10/07/20 13:50	UFLE	ECL 1
Instrument ID: ICPMS05										

## Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

ECL 3 = Eurofins Calscience LLC Knott, 11380 Knott Street, Garden Grove, CA 92841, TEL (714)895-5494

## Accreditation/Certification Summary

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-2  
SDG: 33616.21

### Laboratory: Eurofins Calscience LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	Los Angeles County Sanitation Districts	10109	09-30-21
California	SCAQMD LAP	17LA0919	11-30-20
California	State	2944	09-30-21
Guam	State	20-003R	10-31-20
Nevada	State	CA00111	07-31-21
Oregon	NELAP	CA300001	01-29-21
USDA	US Federal Programs	P330-20-00034	02-10-23
Washington	State	C916-18	10-11-20

## Method Summary

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-2  
SDG: 33616.21

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	SW846	ECL 1
CA WET Citrate	California - Waste Extraction Test with Citrate Leach	CA-WET	ECL 3
Dilution	Preparation / Dilution Process	None	ECL 1

### Protocol References:

CA-WET = California Waste Extraction Test, from Title 22

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

ECL 3 = Eurofins Calscience LLC Knott, 11380 Knott Street, Garden Grove, CA 92841, TEL (714)895-5494



## Sample Summary

Client: A&R Laboratories  
Project/Site: City of Orange Corp Yard 637 W Struck Ave.

Job ID: 570-39588-2  
SDG: 33616.21

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
570-39588-15	SB-7-1	Solid	09/25/20 09:04	09/28/20 14:00	

**A & R Laboratories**  
1650-C S. Grove Avenue  
Ontario, CA 91761  
V: 951.779.0310 • 800.798.9336 F: 951.779.0344  
office@arlaboratories.com

**Chain of Custody Record**

A & R Work Order #  
**2009-00227**  
Page 2 of 2

\*CalScience\*

Project No:		Project Name:																						
33410.21		CITY OF OAKLAND, CALIF. YARD, 637 W. STRICK AVE.																						
Project Manager:		Phone:																						
Jennifer Iniguez		951-779-0310																						
Customer Name: (Report and Billing)		Street Address: (Report and Billing)																						
A & R Laboratories		1650 S. Grove Ave., Ste. C																						
Email:		City, State Zip																						
jennifer.iniguez@arlaboratories.com		Ontario, CA 91761																						
Lab #	Sample ID	Grab/Comp	Date	Time	Sample matrix	Container # & Type	Preserved	Analyses Requested (circle appropriate)				Turn Around												
(Lab use only)	(As it should appear on report)							Micro: Plate Cnt., Coliform, E-Coli	Chem: BOD, TSS, TDS, pH, EC	Chem: Cyanide, Ammonia, Oil & Grease	IC: Br, SO4, PO4, NO3, NO2, Cl	Metals: Title 22 (CAM17 Metals) or RCRA	LUFT Gas or 8015 GRO or C4-C12	LUFT Diesel or 8015 DRO or C13-C40	VOCs by GCMS: 8260 or 624	VOCs by GCMS: BTEX, OXYS	SVOCs: 8270 or 625	Pest. &/or PCBs: 608 or 8081/8082	CAM16 by 6020	As by 6020	STC Cr by 6020	24hr RUSH* 48hr RUSH* Normal Other		
SB-5-0.5	SB-5-1.5		9/25/2020	12:28	Soil	I G																		
SB-5-0.5	SB-5-1.5			12:29																				
SB-5-2.5	SB-6-0.5			12:30																				
SB-7-1	SB-7-1.5			11:37																				
				9:04																				
				9:05																				
1) Relinquished by: (Sampler's Signature)		Date:	Time:	3) Relinquished by:		Date:	Time:	5) Relinquished by:		Date:	Time:	6) Received for Laboratory by:		Date:	Time:	Disposal								
Jenny		9/25/20	14:00													Return Lab Disposal								
2) Received by:		Date:	Time:	4) Received by:		Date:	Time:	6) Received for Laboratory by:		Date:	Time:					Unless other arrangements are made samples will be disposed of 60 days after receipt.								
Jenny		9/25/20	14:00																					
Samples Chilled		Custody Seals		Samples Intact		Temp C		Delivery		Report Delivery Formats														
<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> Yes <input checked="" type="radio"/> No		<input type="radio"/> Yes <input type="radio"/> No				<input checked="" type="radio"/> Courier <input type="radio"/> Walk In		<input type="checkbox"/> Paper <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> XLS														
<input type="radio"/> From Field								<input type="radio"/> UPS/Fed Ex		<input type="checkbox"/> EDD, Type														
										<input type="checkbox"/> EDF, EPA Site ID														

Laboratory Notes: Please cc: jenny.jiang@arlaboratories.com \*Phone wait 2009-00227 + phone add on a submittal.

Figure 1 consists of three maps. Map (a) shows the Adriatic Sea with a box indicating the study area. Map (b) shows the study area with a box indicating the location of the sampling stations. Map (c) shows the study area with a box indicating the location of the sampling stations.

office@arlaboratories.com

## A &amp; R Work Order #:

2009-00227

Page 1 of 2

*The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.*

1650-C S. Grove Avenue  
Ontario, CA 91761  
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A & R Work Order #: **2009-00227**

Page 2 of 2[illegible]

*The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.*



## Login Sample Receipt Checklist

Client: A&R Laboratories

Job Number: 570-39588-2

SDG Number: 33616.21

**Login Number: 39588**

**List Number: 1**

**Creator: Soriano, Precy**

**List Source: Eurofins Calscience**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## ANALYTICAL REPORT

Eurofins Calscience LLC  
7440 Lincoln Way  
Garden Grove, CA 92841  
Tel: (714)895-5494

Laboratory Job ID: 570-40178-1

Client Project/Site: 33616.21 / City of Orange Corp. Yard

**For:**

A&R Laboratories  
1650-C S. Grove Ave  
Ontario, California 91761

Attn: Jennifer Iniguez



*Authorized for release by:*  
10/8/2020 4:23:03 PM

Don Burley, Senior Project Manager  
(714)895-5494  
[Donald.Burley@eurofinset.com](mailto:Donald.Burley@eurofinset.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

*The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*



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## Definitions/Glossary

Client: A&R Laboratories  
Project/Site: 33616.21 / City of Orange Corp. Yard

Job ID: 570-40178-1

### Qualifiers

#### Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: A&R Laboratories  
Project/Site: 33616.21 / City of Orange Corp. Yard

Job ID: 570-40178-1

**Job ID: 570-40178-1**

**Laboratory: Eurofins Calscience LLC**

## Narrative

### Job Narrative 570-40178-1

## Comments

No additional comments.

## Receipt

The samples were received on 10/6/2020 1:10 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 16.4° C.

## Metals

Method 6020: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-99855 and analytical batch 570-100099 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

## Detection Summary

Client: A&R Laboratories  
Project/Site: 33616.21 / City of Orange Corp. Yard

Job ID: 570-40178-1

### Client Sample ID: SB-7-1

Lab Sample ID: 570-40178-1

No Detections.

### Client Sample ID: SB-7-2.5

Lab Sample ID: 570-40178-2

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	4.85		0.985	mg/Kg	20		6020	Total/NA
Barium	130		0.985	mg/Kg	20		6020	Total/NA
Chromium	16.0		1.97	mg/Kg	20		6020	Total/NA
Cobalt	7.49		0.985	mg/Kg	20		6020	Total/NA
Copper	20.3		0.985	mg/Kg	20		6020	Total/NA
Lead	9.18		0.985	mg/Kg	20		6020	Total/NA
Nickel	14.3		0.985	mg/Kg	20		6020	Total/NA
Vanadium	26.5		1.97	mg/Kg	20		6020	Total/NA
Zinc	77.6		4.93	mg/Kg	20		6020	Total/NA

### Client Sample ID: SB-7-5

Lab Sample ID: 570-40178-3

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	4.14		0.980	mg/Kg	20		6020	Total/NA
Barium	125		0.980	mg/Kg	20		6020	Total/NA
Chromium	12.8		1.96	mg/Kg	20		6020	Total/NA
Cobalt	8.29		0.980	mg/Kg	20		6020	Total/NA
Copper	15.3		0.980	mg/Kg	20		6020	Total/NA
Lead	7.69		0.980	mg/Kg	20		6020	Total/NA
Nickel	13.0		0.980	mg/Kg	20		6020	Total/NA
Vanadium	27.1		1.96	mg/Kg	20		6020	Total/NA
Zinc	62.6		4.90	mg/Kg	20		6020	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Calscience LLC

# Client Sample Results

Client: A&R Laboratories  
Project/Site: 33616.21 / City of Orange Corp. Yard

Job ID: 570-40178-1

## Method: 6020 - Metals (ICP/MS)

Client Sample ID: SB-7-2.5  
Date Collected: 09/25/20 09:06  
Date Received: 10/06/20 13:10

Lab Sample ID: 570-40178-2  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.97	mg/Kg		10/06/20 16:00	10/07/20 12:55	20
<b>Arsenic</b>	<b>4.85</b>		0.985	mg/Kg		10/06/20 16:00	10/07/20 12:55	20
<b>Barium</b>	<b>130</b>		0.985	mg/Kg		10/06/20 16:00	10/07/20 12:55	20
Beryllium	ND		0.985	mg/Kg		10/06/20 16:00	10/07/20 12:55	20
Cadmium	ND		0.985	mg/Kg		10/06/20 16:00	10/07/20 12:55	20
<b>Chromium</b>	<b>16.0</b>		1.97	mg/Kg		10/06/20 16:00	10/07/20 12:55	20
<b>Cobalt</b>	<b>7.49</b>		0.985	mg/Kg		10/06/20 16:00	10/07/20 12:55	20
<b>Copper</b>	<b>20.3</b>		0.985	mg/Kg		10/06/20 16:00	10/07/20 12:55	20
<b>Lead</b>	<b>9.18</b>		0.985	mg/Kg		10/06/20 16:00	10/07/20 12:55	20
Molybdenum	ND		0.985	mg/Kg		10/06/20 16:00	10/07/20 12:55	20
<b>Nickel</b>	<b>14.3</b>		0.985	mg/Kg		10/06/20 16:00	10/07/20 12:55	20
Selenium	ND		0.985	mg/Kg		10/06/20 16:00	10/07/20 12:55	20
Silver	ND		0.985	mg/Kg		10/06/20 16:00	10/07/20 12:55	20
Thallium	ND		0.985	mg/Kg		10/06/20 16:00	10/07/20 12:55	20
<b>Vanadium</b>	<b>26.5</b>		1.97	mg/Kg		10/06/20 16:00	10/07/20 12:55	20
<b>Zinc</b>	<b>77.6</b>		4.93	mg/Kg		10/06/20 16:00	10/07/20 12:55	20

Client Sample ID: SB-7-5  
Date Collected: 09/25/20 09:07  
Date Received: 10/06/20 13:10

Lab Sample ID: 570-40178-3  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.96	mg/Kg		10/06/20 16:00	10/07/20 12:59	20
<b>Arsenic</b>	<b>4.14</b>		0.980	mg/Kg		10/06/20 16:00	10/07/20 12:59	20
<b>Barium</b>	<b>125</b>		0.980	mg/Kg		10/06/20 16:00	10/07/20 12:59	20
Beryllium	ND		0.980	mg/Kg		10/06/20 16:00	10/07/20 12:59	20
Cadmium	ND		0.980	mg/Kg		10/06/20 16:00	10/07/20 12:59	20
<b>Chromium</b>	<b>12.8</b>		1.96	mg/Kg		10/06/20 16:00	10/07/20 12:59	20
<b>Cobalt</b>	<b>8.29</b>		0.980	mg/Kg		10/06/20 16:00	10/07/20 12:59	20
<b>Copper</b>	<b>15.3</b>		0.980	mg/Kg		10/06/20 16:00	10/07/20 12:59	20
<b>Lead</b>	<b>7.69</b>		0.980	mg/Kg		10/06/20 16:00	10/07/20 12:59	20
Molybdenum	ND		0.980	mg/Kg		10/06/20 16:00	10/07/20 12:59	20
<b>Nickel</b>	<b>13.0</b>		0.980	mg/Kg		10/06/20 16:00	10/07/20 12:59	20
Selenium	ND		0.980	mg/Kg		10/06/20 16:00	10/07/20 12:59	20
Silver	ND		0.980	mg/Kg		10/06/20 16:00	10/07/20 12:59	20
Thallium	ND		0.980	mg/Kg		10/06/20 16:00	10/07/20 12:59	20
<b>Vanadium</b>	<b>27.1</b>		1.96	mg/Kg		10/06/20 16:00	10/07/20 12:59	20
<b>Zinc</b>	<b>62.6</b>		4.90	mg/Kg		10/06/20 16:00	10/07/20 12:59	20

# Client Sample Results

Client: A&R Laboratories  
Project/Site: 33616.21 / City of Orange Corp. Yard

Job ID: 570-40178-1

## Method: 6020 - Metals (ICP/MS) - TCLP

Client Sample ID: SB-7-1  
Date Collected: 09/25/20 09:04  
Date Received: 10/06/20 13:10

Lab Sample ID: 570-40178-1  
Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		0.200	mg/L		10/07/20 13:47	10/08/20 14:00	20

# QC Sample Results

Client: A&R Laboratories  
Project/Site: 33616.21 / City of Orange Corp. Yard

Job ID: 570-40178-1

## Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 570-99855/1-A ^20

Matrix: Solid

Analysis Batch: 100099

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 99855

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.99	mg/Kg		10/06/20 16:00	10/07/20 12:04	20
Arsenic	ND		0.995	mg/Kg		10/06/20 16:00	10/07/20 12:04	20
Barium	ND		0.995	mg/Kg		10/06/20 16:00	10/07/20 12:04	20
Beryllium	ND		0.995	mg/Kg		10/06/20 16:00	10/07/20 12:04	20
Cadmium	ND		0.995	mg/Kg		10/06/20 16:00	10/07/20 12:04	20
Chromium	ND		1.99	mg/Kg		10/06/20 16:00	10/07/20 12:04	20
Cobalt	ND		0.995	mg/Kg		10/06/20 16:00	10/07/20 12:04	20
Copper	ND		0.995	mg/Kg		10/06/20 16:00	10/07/20 12:04	20
Lead	ND		0.995	mg/Kg		10/06/20 16:00	10/07/20 12:04	20
Molybdenum	ND		0.995	mg/Kg		10/06/20 16:00	10/07/20 12:04	20
Nickel	ND		0.995	mg/Kg		10/06/20 16:00	10/07/20 12:04	20
Selenium	ND		0.995	mg/Kg		10/06/20 16:00	10/07/20 12:04	20
Silver	ND		0.995	mg/Kg		10/06/20 16:00	10/07/20 12:04	20
Thallium	ND		0.995	mg/Kg		10/06/20 16:00	10/07/20 12:04	20
Vanadium	ND		1.99	mg/Kg		10/06/20 16:00	10/07/20 12:04	20
Zinc	ND		4.98	mg/Kg		10/06/20 16:00	10/07/20 12:04	20

Lab Sample ID: LCS 570-99855/2-A ^20

Matrix: Solid

Analysis Batch: 100099

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 99855

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	24.5	23.11		mg/Kg		94	80 - 120
Arsenic	24.5	24.04		mg/Kg		98	80 - 120
Barium	24.5	24.74		mg/Kg		101	80 - 120
Beryllium	24.5	26.49		mg/Kg		108	80 - 120
Cadmium	24.5	24.44		mg/Kg		100	80 - 120
Chromium	24.5	24.46		mg/Kg		100	80 - 120
Cobalt	24.5	22.76		mg/Kg		93	80 - 120
Copper	24.5	24.08		mg/Kg		98	80 - 120
Lead	24.5	26.81		mg/Kg		109	80 - 120
Molybdenum	24.5	23.52		mg/Kg		96	80 - 120
Nickel	24.5	24.57		mg/Kg		100	80 - 120
Selenium	24.5	23.95		mg/Kg		98	80 - 120
Silver	12.3	11.91		mg/Kg		97	80 - 120
Thallium	24.5	25.35		mg/Kg		103	80 - 120
Vanadium	24.5	23.49		mg/Kg		96	80 - 120
Zinc	24.5	25.40		mg/Kg		104	80 - 120

Lab Sample ID: LCSD 570-99855/3-A ^20

Matrix: Solid

Analysis Batch: 100099

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 99855

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Antimony	24.8	23.33		mg/Kg		94	80 - 120	1	20
Arsenic	24.8	24.11		mg/Kg		97	80 - 120	0	20
Barium	24.8	24.41		mg/Kg		99	80 - 120	1	20
Beryllium	24.8	25.97		mg/Kg		105	80 - 120	2	20
Cadmium	24.8	24.93		mg/Kg		101	80 - 120	2	20

Eurofins Calscience LLC

# QC Sample Results

Client: A&R Laboratories  
Project/Site: 33616.21 / City of Orange Corp. Yard

Job ID: 570-40178-1

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-99855/3-A ^20

Matrix: Solid

Analysis Batch: 100099

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 99855

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	24.8	23.62		mg/Kg		95	80 - 120	3	20
Cobalt	24.8	23.72		mg/Kg		96	80 - 120	4	20
Copper	24.8	23.48		mg/Kg		95	80 - 120	3	20
Lead	24.8	26.57		mg/Kg		107	80 - 120	1	20
Molybdenum	24.8	22.84		mg/Kg		92	80 - 120	3	20
Nickel	24.8	25.20		mg/Kg		102	80 - 120	3	20
Selenium	24.8	23.80		mg/Kg		96	80 - 120	1	20
Silver	12.4	12.35		mg/Kg		100	80 - 120	4	20
Thallium	24.8	25.55		mg/Kg		103	80 - 120	1	20
Vanadium	24.8	23.70		mg/Kg		96	80 - 120	1	20
Zinc	24.8	25.19		mg/Kg		102	80 - 120	1	20

Lab Sample ID: 570-40184-D-1-C MS ^20

Matrix: Solid

Analysis Batch: 100099

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 99855

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		24.8	4.641		mg/Kg		19	1 - 97		
Arsenic	1.08		24.8	25.82		mg/Kg		100	72 - 132		
Barium	28.9		24.8	61.79		mg/Kg		133	50 - 152		
Beryllium	ND	F2 F1	24.8	28.98		mg/Kg		116	61 - 121		
Cadmium	ND		24.8	28.08		mg/Kg		113	85 - 121		
Chromium	13.5		24.8	41.15		mg/Kg		112	20 - 182		
Cobalt	3.22		24.8	28.45		mg/Kg		102	40 - 166		
Copper	3.84		24.8	31.93		mg/Kg		113	25 - 157		
Lead	2.94		24.8	30.88		mg/Kg		113	62 - 134		
Molybdenum	ND	F2	24.8	20.62		mg/Kg		83	69 - 123		
Nickel	4.35		24.8	31.94		mg/Kg		111	46 - 154		
Selenium	ND		24.8	26.40		mg/Kg		107	54 - 132		
Silver	ND		12.4	14.14		mg/Kg		114	78 - 126		
Thallium	ND		24.8	28.07		mg/Kg		113	79 - 115		
Vanadium	14.9		24.8	42.76		mg/Kg		113	28 - 178		
Zinc	18.7		24.8	48.34		mg/Kg		120	23 - 173		

Lab Sample ID: 570-40184-D-1-D MSD ^20

Matrix: Solid

Analysis Batch: 100099

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 99855

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	ND		25.4	4.737		mg/Kg		19	1 - 97	2	39
Arsenic	1.08		25.4	26.45		mg/Kg		100	72 - 132	2	13
Barium	28.9		25.4	64.10		mg/Kg		139	50 - 152	4	41
Beryllium	ND	F2 F1	25.4	33.97	F1 F2	mg/Kg		133	61 - 121	16	13
Cadmium	ND		25.4	28.75		mg/Kg		113	85 - 121	2	12
Chromium	13.5		25.4	47.67		mg/Kg		135	20 - 182	15	15
Cobalt	3.22		25.4	28.89		mg/Kg		101	40 - 166	2	14
Copper	3.84		25.4	36.38		mg/Kg		128	25 - 157	13	22
Lead	2.94		25.4	30.56		mg/Kg		109	62 - 134	1	23
Molybdenum	ND	F2	25.4	24.36	F2	mg/Kg		96	69 - 123	17	13

Eurofins Calscience LLC



# QC Sample Results

Client: A&R Laboratories  
Project/Site: 33616.21 / City of Orange Corp. Yard

Job ID: 570-40178-1

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-40184-D-1-D MSD ^20

Matrix: Solid

Analysis Batch: 100099

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 99855

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nickel	4.35		25.4	31.77		mg/Kg		108	46 - 154	1	15
Selenium	ND		25.4	26.62		mg/Kg		105	54 - 132	1	14
Silver	ND		12.7	14.50		mg/Kg		114	78 - 126	3	15
Thallium	ND		25.4	27.72		mg/Kg		109	79 - 115	1	11
Vanadium	14.9		25.4	43.80		mg/Kg		114	28 - 178	2	28
Zinc	18.7		25.4	55.98		mg/Kg		147	23 - 173	15	18

Lab Sample ID: LB 570-99799/1-C ^20

Matrix: Solid

Analysis Batch: 100422

Client Sample ID: Method Blank

Prep Type: TCLP

Prep Batch: 100113

Analyte	LB Result	LB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		0.200	mg/L		10/07/20 13:47	10/08/20 13:55	20

Lab Sample ID: LCS 570-99799/2-C ^20

Matrix: Solid

Analysis Batch: 100422

Client Sample ID: Lab Control Sample

Prep Type: TCLP

Prep Batch: 100113

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	5.00	4.282		mg/L		86	80 - 120

Lab Sample ID: LCSD 570-99799/3-C ^20

Matrix: Solid

Analysis Batch: 100422

Client Sample ID: Lab Control Sample Dup

Prep Type: TCLP

Prep Batch: 100113

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	5.00	4.373		mg/L		87	80 - 120	2	20

Lab Sample ID: 570-40178-1 MS

Matrix: Solid

Analysis Batch: 100422

Client Sample ID: SB-7-1

Prep Type: TCLP

Prep Batch: 100113

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	ND		5.00	4.454		mg/L		89	73 - 133

Lab Sample ID: 570-40178-1 MSD

Matrix: Solid

Analysis Batch: 100422

Client Sample ID: SB-7-1

Prep Type: TCLP

Prep Batch: 100113

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	ND		5.00	4.461		mg/L		89	73 - 133	0	11

# QC Association Summary

Client: A&R Laboratories  
Project/Site: 33616.21 / City of Orange Corp. Yard

Job ID: 570-40178-1

## Metals

### Leach Batch: 99799

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-40178-1	SB-7-1	TCLP	Solid	1311	
LB 570-99799/1-C ^20	Method Blank	TCLP	Solid	1311	
LCS 570-99799/2-C ^20	Lab Control Sample	TCLP	Solid	1311	
LCSD 570-99799/3-C ^20	Lab Control Sample Dup	TCLP	Solid	1311	
570-40178-1 MS	SB-7-1	TCLP	Solid	1311	
570-40178-1 MSD	SB-7-1	TCLP	Solid	1311	

### Prep Batch: 99855

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-40178-2	SB-7-2.5	Total/NA	Solid	3050B	
570-40178-3	SB-7-5	Total/NA	Solid	3050B	
MB 570-99855/1-A ^20	Method Blank	Total/NA	Solid	3050B	
LCS 570-99855/2-A ^20	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-99855/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	3050B	
570-40184-D-1-C MS ^20	Matrix Spike	Total/NA	Solid	3050B	
570-40184-D-1-D MSD ^20	Matrix Spike Duplicate	Total/NA	Solid	3050B	

### Analysis Batch: 100099

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-40178-2	SB-7-2.5	Total/NA	Solid	6020	99855
570-40178-3	SB-7-5	Total/NA	Solid	6020	99855
MB 570-99855/1-A ^20	Method Blank	Total/NA	Solid	6020	99855
LCS 570-99855/2-A ^20	Lab Control Sample	Total/NA	Solid	6020	99855
LCSD 570-99855/3-A ^20	Lab Control Sample Dup	Total/NA	Solid	6020	99855
570-40184-D-1-C MS ^20	Matrix Spike	Total/NA	Solid	6020	99855
570-40184-D-1-D MSD ^20	Matrix Spike Duplicate	Total/NA	Solid	6020	99855

### Prep Batch: 100113

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-40178-1	SB-7-1	TCLP	Solid	3020A	99799
LB 570-99799/1-C ^20	Method Blank	TCLP	Solid	3020A	99799
LCS 570-99799/2-C ^20	Lab Control Sample	TCLP	Solid	3020A	99799
LCSD 570-99799/3-C ^20	Lab Control Sample Dup	TCLP	Solid	3020A	99799
570-40178-1 MS	SB-7-1	TCLP	Solid	3020A	99799
570-40178-1 MSD	SB-7-1	TCLP	Solid	3020A	99799

### Analysis Batch: 100422

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-40178-1	SB-7-1	TCLP	Solid	6020	100113
LB 570-99799/1-C ^20	Method Blank	TCLP	Solid	6020	100113
LCS 570-99799/2-C ^20	Lab Control Sample	TCLP	Solid	6020	100113
LCSD 570-99799/3-C ^20	Lab Control Sample Dup	TCLP	Solid	6020	100113
570-40178-1 MS	SB-7-1	TCLP	Solid	6020	100113
570-40178-1 MSD	SB-7-1	TCLP	Solid	6020	100113

# Lab Chronicle

Client: A&R Laboratories  
Project/Site: 33616.21 / City of Orange Corp. Yard

Job ID: 570-40178-1

**Client Sample ID: SB-7-1**

**Date Collected: 09/25/20 09:04**

**Date Received: 10/06/20 13:10**

**Lab Sample ID: 570-40178-1**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			99.98 g	2000 mL	99799	10/06/20 17:27	QZW6	ECL 3
TCLP	Prep	3020A			5 mL	50 mL	100113	10/07/20 13:47	QZW6	ECL 1
TCLP	Analysis	6020		20			100422	10/08/20 14:00	UFLE	ECL 1
Instrument ID: ICPMS05										

**Client Sample ID: SB-7-2.5**

**Date Collected: 09/25/20 09:06**

**Date Received: 10/06/20 13:10**

**Lab Sample ID: 570-40178-2**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.03 g	100 mL	99855	10/06/20 16:00	SP7J	ECL 1
Total/NA	Analysis	6020		20			100099	10/07/20 12:55	UFLE	ECL 1
Instrument ID: ICPMS05										

**Client Sample ID: SB-7-5**

**Date Collected: 09/25/20 09:07**

**Date Received: 10/06/20 13:10**

**Lab Sample ID: 570-40178-3**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.04 g	100 mL	99855	10/06/20 16:00	SP7J	ECL 1
Total/NA	Analysis	6020		20			100099	10/07/20 12:59	UFLE	ECL 1
Instrument ID: ICPMS05										

## Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

ECL 3 = Eurofins Calscience LLC Knott, 11380 Knott Street, Garden Grove, CA 92841, TEL (714)895-5494

## Accreditation/Certification Summary

Client: A&R Laboratories  
Project/Site: 33616.21 / City of Orange Corp. Yard

Job ID: 570-40178-1

### Laboratory: Eurofins Calscience LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	Los Angeles County Sanitation Districts	10109	09-30-21
California	SCAQMD LAP	17LA0919	11-30-20
California	State	2944	09-30-21
Guam	State	20-003R	10-31-20
Nevada	State	CA00111	07-31-21
Oregon	NELAP	CA300001	01-29-21
USDA	US Federal Programs	P330-20-00034	02-10-23
Washington	State	C916-18	10-11-20

## Method Summary

Client: A&R Laboratories  
Project/Site: 33616.21 / City of Orange Corp. Yard

Job ID: 570-40178-1

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	SW846	ECL 1
1311	TCLP Extraction	SW846	ECL 3
3020A	Preparation, Total Metals	SW846	ECL 1
3050B	Preparation, Metals	SW846	ECL 1

### Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

ECL 3 = Eurofins Calscience LLC Knott, 11380 Knott Street, Garden Grove, CA 92841, TEL (714)895-5494

## Sample Summary

Client: A&R Laboratories  
Project/Site: 33616.21 / City of Orange Corp. Yard

Job ID: 570-40178-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
570-40178-1	SB-7-1	Solid	09/25/20 09:04	10/06/20 13:10	
570-40178-2	SB-7-2.5	Solid	09/25/20 09:06	10/06/20 13:10	
570-40178-3	SB-7-5	Solid	09/25/20 09:07	10/06/20 13:10	

Fig. 1. Schematic diagram of the lattice structure.

office@arlaboratories.com

# RUSH

**2010-00041**

Page 1 of 1

[illegible]

*The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.*



## Login Sample Receipt Checklist

Client: A&R Laboratories

Job Number: 570-40178-1

**Login Number: 40178**

**List Number: 1**

**Creator: Liao, Gineyau**

**List Source: Eurofins Calscience**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# A & R Laboratories

1650 S. Grove Ave., Ste C, Ontario, CA 91761  
Tel: 951-779-0310 / 909-781-6335 Fax: 951-779-0344  
E-mail: office@arlaboratories.com

## CHAIN OF CUSTODY

A & R Work Order #:

2010-41

Page 1 of 1

Client Name <b>LOR Geotechnical Group, Inc.</b>						<input checked="" type="checkbox"/> Chilled		Analyses Requested										Turn Around Time Requested					
E-mail <b>MHUNT@LORGED.COM</b>						<input checked="" type="checkbox"/> Intact												<input type="checkbox"/> Rush 8 12 24 48 Hours					
Address <b>10121 Quail Valley Court, Riverside, CA 92507</b>						<input type="checkbox"/> Seal												<input checked="" type="checkbox"/> Normal					
Report Attention <b>Matthew H.</b>		Phone # <b>951-653-1760</b>		Sampled By <b>MH</b>																			
Project No./ Name <b>33616.21</b>		Project Site <b>City of Orange Corp. Yard. 637 W. Struck Ave.</b>																					
Lab # (Lab use)	Client Sample ID	Sample Collection Date Time		Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B (BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA 6020/711A Metals	EPA 6020 AS	EPA 600B Boron	EPA 7196A Cr (VI)	EPA 6020 TCLP Cr	EPA 6020 STL Cr	Remarks	
1	SB-7-1	9/25/20	0904	Soil	Ice	1 Plastic Tube	X						X			X			X	X	X		
	SB-7-1.5		0905								X					X							
2	SB-7-2.5		0906													X							
3	SB-7-5		0907													X							
	SB-7-7		0909																				
	SB-7-10		0911																				
	SB-7-12		0913																				
	SB-8-1.5		0830																				
	SB-8-3		0836															X					
	SB-8-5		0839															X					
	SB-9-1.5		0750															X					
	SB-9-3		0758															X					
	SB-9-5	✓	0805	✓		✓																	
Relinquished By <b>Matthew H. Hunt</b>		Company <b>LOR</b>		Date <b>9/25/20</b>	Time <b>1701</b>	Received By <b>[Signature]</b>	Company <b>AR</b>		Date <b>9/25/20</b>	Time <b>1701</b>	Note: Samples are discarded 30 days after results are reported unless other arrangements are made.												
Relinquished By		Company		Date	Time	Received By	Company		Date	Time													

\*Lab Wb# 2009-727 added on rush per  
 Matthew H. Hunt  
 9/25/20

**RUSH**

Matrix Code	DW=Drinking Water GW=Ground Water WW=Waste Water SD=Solid Waste	SL=Sludge SS=Soil/Sediment AR=Air PP=Pure Product	Preservative Code	IC=Ice HC=HCl HN=HNO <sub>3</sub>	SH=NaOH ST=Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> HS=H <sub>2</sub> SO <sub>4</sub>	* Sample Container Types T=Tedlar Air Bag G=Glass Container ST=Steel Tube	B=Brass Tube P=Plastic Bottle V=VOA Vial	E=EnCore
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## **APPENDIX D**

### **Laboratory Analytical Report for Soil Vapor Samples**



## A & R Laboratories, Inc.

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FDA#	2030513
LA City#	10261
ELAP#s	2789
	2790
	2122

CHEMISTRY · MICROBIOLOGY · FOOD SAFETY · MOBILE LABORATORIES  
FOOD · COSMETICS · WATER · SOIL · SOIL VAPOR · WASTES

### CASE NARRATIVE

Authorized Signature Name / Title (print)

Ken Zheng, President

Signature / Date

*Ken Zheng*

Ken Zheng, President  
10/07/2020 11:08:28

Laboratory Job No. (Certificate of Analysis No.)

2009-00236

Project Name / No.

637 W. Struck Ave., Orange, CA 92867

Dates Sampled (from/to)

09/29/20 To 09/29/20

Dates Received (from/to)

09/29/20 To 09/29/20

Dates Reported (from/to)

10/07/20 To 10/7/2020

Chains of Custody Received

Yes

Comments:

#### Subcontracting

Organic Analyses

No analyses sub-contracted

#### Sample Condition(s)

All samples intact





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FDA#	2030513
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	2790
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FOOD · COSMETICS · WATER · SOIL · SOIL VAPOR · WASTES

Laboratory Job# 2009-00236

## Positive Results (Organic Compounds)

Sample	Analyte	Result	Qual	Units	RL	Sample	Analyte	Result	Qual	Units	RL
SVP-7-7	1,2,4-Trimethylbenzene	0.12		µg/L	0.013	SVP-7-7	1,3,5-Trimethylbenzene	0.060		µg/L	0.013
SVP-7-7	Benzene	0.11		µg/L	0.013	SVP-7-7	C4-C12	3.7		µg/L	2.5
SVP-7-7	Dichlorodifluoromethane	0.080		µg/L	0.013	SVP-7-7	Ethylbenzene	0.040		µg/L	0.013
SVP-7-7	Toluene	0.10		µg/L	0.013	SVP-7-7	m,p-Xylenes	0.16		µg/L	0.026
SVP-7-7	o-Xylene	0.050		µg/L	0.013	SVP-2-7	1,2,4-Trimethylbenzene	0.050		µg/L	0.013
SVP-2-7	Benzene	0.012	J	µg/L	0.013	SVP-2-7	C4-C12	2.0	J	µg/L	2.5
SVP-2-7	Dichlorodifluoromethane	1.3		µg/L	0.013	SVP-2-7	Toluene	0.070		µg/L	0.013
SVP-2-7	m,p-Xylenes	0.090		µg/L	0.026	SVP-2-7	o-Xylene	0.030		µg/L	0.013
SVP-3-7	Benzene	0.010	J	µg/L	0.013	SVP-3-7	Dichlorodifluoromethane	1.3		µg/L	0.013
SVP-3-7	Toluene	0.050		µg/L	0.013	SVP-3-7	m,p-Xylenes	0.060		µg/L	0.026
SVP-3-7	o-Xylene	0.020		µg/L	0.013	SVP-4-7	1,2,4-Trimethylbenzene	0.030		µg/L	0.013
SVP-4-7	Benzene	0.011	J	µg/L	0.013	SVP-4-7	C4-C12	1.9	J	µg/L	2.5
SVP-4-7	Dichlorodifluoromethane	0.98		µg/L	0.013	SVP-4-7	Toluene	0.070		µg/L	0.013
SVP-4-7	m,p-Xylenes	0.090		µg/L	0.026	SVP-4-7	o-Xylene	0.030		µg/L	0.013
SVP-1-7	1,2,4-Trimethylbenzene	0.030		µg/L	0.013	SVP-1-7	Benzene	0.010	J	µg/L	0.013
SVP-1-7	C4-C12	1.6	J	µg/L	2.5	SVP-1-7	Dichlorodifluoromethane	3.3		µg/L	0.013
SVP-1-7	Toluene	0.060		µg/L	0.013	SVP-1-7	m,p-Xylenes	0.090		µg/L	0.026
SVP-1-7	o-Xylene	0.030		µg/L	0.013	SVP-6-7	Dichlorodifluoromethane	0.10		µg/L	0.013
SVP-6-7	Toluene	0.030		µg/L	0.013	SVP-5-7	C4-C12	1.3	J	µg/L	2.5
SVP-5-7	Dichlorodifluoromethane	2.0		µg/L	0.013	SVP-5-7	Toluene	0.040		µg/L	0.013
SVP-5-7	m,p-Xylenes	0.050		µg/L	0.026	SVP-5-7	o-Xylene	0.020		µg/L	0.013
SVP-5-7 DUP	Dichlorodifluoromethane	1.6		µg/L	0.013	SVP-5-7 DUP	Toluene	0.030		µg/L	0.013
SVP-5-7 DUP	m,p-Xylenes	0.040		µg/L	0.026	SVP-4-12	Benzene	0.012	J	µg/L	0.013
SVP-4-12	Dichlorodifluoromethane	0.93		µg/L	0.013	SVP-5-12	C4-C12	1.3	J	µg/L	2.5
SVP-5-12	Dichlorodifluoromethane	2.0		µg/L	0.013	SVP-5-12	Toluene	0.040		µg/L	0.013
SVP-5-12	m,p-Xylenes	0.050		µg/L	0.026	SVP-5-12	o-Xylene	0.020		µg/L	0.013
SVP-1-12	Dichlorodifluoromethane	2.9		µg/L	0.013	SVP-1-12	Toluene	0.040		µg/L	0.013
SVP-1-12	m,p-Xylenes	0.050		µg/L	0.026	SVP-1-12	o-Xylene	0.020		µg/L	0.013
SVP-3-12	C4-C12	1.5	J	µg/L	2.5	SVP-3-12	Dichlorodifluoromethane	1.8		µg/L	0.013
SVP-3-12	Toluene	0.040		µg/L	0.013	SVP-3-12	m,p-Xylenes	0.040		µg/L	0.026
SVP-7-12	1,2,4-Trimethylbenzene	0.040		µg/L	0.013	SVP-7-12	C4-C12	5.2		µg/L	2.5
SVP-7-12	Dichlorodifluoromethane	0.13		µg/L	0.013	SVP-7-12	Toluene	0.060		µg/L	0.013
SVP-7-12	m,p-Xylenes	0.38		µg/L	0.026	SVP-7-12	o-Xylene	0.21		µg/L	0.013



# A & R Laboratories, Inc.

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LA City#	10261
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	2790
	2122

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 001 <b>SVP-7-7</b>					Date & Time Sampled:			09/29/20	@	7:20
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
[TPH Gasoline by GCMS ]										
C4-C12	<b>3.7</b>		µg/L	LUFT GCMS	0.3	1.2500	2.5	09/29/20	7:32	KZ
[VOCs by GCMS]										
Acetone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	7:32	KZ
t-Amyl Methyl Ether (TAME)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Benzene	<b>0.11</b>		µg/L	EPA 8260B	0.1	0.0031	0.013	09/29/20	7:32	KZ
Bromobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Bromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Bromodichloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Bromoform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Bromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
t-Butanol (TBA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	7:32	KZ
2-Butanone (MEK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	7:32	KZ
n-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
sec-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
tert-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Carbon Disulfide	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	7:32	KZ
Carbon Tetrachloride	<0.0033		µg/L	EPA 8260B	0.1	0.0033	0.0065	09/29/20	7:32	KZ
Chlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Chloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Chloroform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Chloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
2-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
4-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Dibromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
1,2-Dibromoethane (EDB)	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	7:32	KZ
1,2-Dibromo-3-Chloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	7:32	KZ
Dibromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
1,2-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
1,3-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
1,4-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ

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	2790
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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 001 <b>SVP-7-7</b>					Date & Time Sampled: 09/29/20 @ 7:20					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
Dichlorodifluoromethane	<b>0.080</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
1,1-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
1,2-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
1,1-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
cis-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
trans-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
1,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
1,3-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
2,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
1,1-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
cis-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
trans-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Diisopropyl Ether (DiPE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Ethylbenzene	<b>0.040</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Ethyl-t-Butyl Ether (EtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Hexachlorobutadiene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
2-Hexanone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	7:32	KZ
Isopropylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
4-Isopropyltoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Methylene Chloride	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.01	09/29/20	7:32	KZ
4-Methyl-2-Pentanone (MIBK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	7:32	KZ
Methyl-t-butyl Ether (MtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Naphthalene	<0.0042		µg/L	EPA 8260B	0.1	0.0042	0.0065	09/29/20	7:32	KZ
n-Propylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Styrene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
1,1,1,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
1,1,2,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Tetrachloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Toluene	<b>0.10</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
1,2,3-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 001 <b>SVP-7-7</b>					Date & Time Sampled:			09/29/20	@	7:20
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
1,2,4-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
1,1,1-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
1,1,2-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Trichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
1,2,3-Trichloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	7:32	KZ
Trichlorofluoromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Trichlorotrifluoroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
1,2,4-Trimethylbenzene	<b>0.12</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
1,3,5-Trimethylbenzene	<b>0.060</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
Vinyl Chloride	<0.0010		µg/L	EPA 8260B	0.1	0.0010	0.0065	09/29/20	7:32	KZ
m,p-Xylenes	<b>0.16</b>		µg/L	EPA 8260B	0.1	0.0130	0.026	09/29/20	7:32	KZ
o-Xylene	<b>0.050</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:32	KZ
[VOC Vapor Sampling Tracer]										
Isopropanol (IPA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	7:32	KZ
[VOC Surrogates]										
Dibromofluoromethane	117		%REC	EPA 8260B			70-130	09/29/20	7:32	KZ
Toluene-D8	115		%REC	EPA 8260B			70-130	09/29/20	7:32	KZ
Bromofluorobenzene	107		%REC	EPA 8260B			70-130	09/29/20	7:32	KZ
Sample: 002 <b>SVP-2-7</b>					Date & Time Sampled:			09/29/20	@	7:48
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
[TPH Gasoline by GCMS ]										
C4-C12	<b>2.0</b>	J	µg/L	LUFT GCMS	0.3	1.2500	2.5	09/29/20	7:59	KZ
[VOCs by GCMS]										
Acetone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	7:59	KZ
t-Amyl Methyl Ether (TAME)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Benzene	<b>0.012</b>	J	µg/L	EPA 8260B	0.1	0.0031	0.013	09/29/20	7:59	KZ
Bromobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Bromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 002 <b>SVP-2-7</b>					Date & Time Sampled: 09/29/20 @ 7:48					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
Bromodichloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Bromoform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Bromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
t-Butanol (TBA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	7:59	KZ
2-Butanone (MEK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	7:59	KZ
n-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
sec-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
tert-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Carbon Disulfide	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	7:59	KZ
Carbon Tetrachloride	<0.0033		µg/L	EPA 8260B	0.1	0.0033	0.0065	09/29/20	7:59	KZ
Chlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Chloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Chloroform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Chloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
2-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
4-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Dibromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
1,2-Dibromoethane (EDB)	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	7:59	KZ
1,2-Dibromo-3-Chloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	7:59	KZ
Dibromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
1,2-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
1,3-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
1,4-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Dichlorodifluoromethane	<b>1.3</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
1,1-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
1,2-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
1,1-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
cis-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
trans-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
1,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 002 <b>SVP-2-7</b>					Date & Time Sampled: 09/29/20 @ 7:48					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
1,3-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
2,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
1,1-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
cis-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
trans-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Diisopropyl Ether (DiPE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Ethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Ethyl-t-Butyl Ether (EtBtE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Hexachlorobutadiene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
2-Hexanone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	7:59	KZ
Isopropylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
4-Isopropyltoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Methylene Chloride	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.01	09/29/20	7:59	KZ
4-Methyl-2-Pentanone (MIBK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	7:59	KZ
Methyl-t-butyl Ether (MtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Naphthalene	<0.0042		µg/L	EPA 8260B	0.1	0.0042	0.0065	09/29/20	7:59	KZ
n-Propylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Styrene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
1,1,1,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
1,1,2,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Tetrachloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Toluene	<b>0.070</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
1,2,3-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
1,2,4-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
1,1,1-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
1,1,2-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Trichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
1,2,3-Trichloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	7:59	KZ
Trichlorofluoromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Trichlorotrifluoroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 002 <b>SVP-2-7</b>					Date & Time Sampled: 09/29/20 @ 7:48					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: 3										
.....continued										
1,2,4-Trimethylbenzene	0.050		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
1,3,5-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
Vinyl Chloride	<0.0010		µg/L	EPA 8260B	0.1	0.0010	0.0065	09/29/20	7:59	KZ
m,p-Xylenes	0.090		µg/L	EPA 8260B	0.1	0.0130	0.026	09/29/20	7:59	KZ
o-Xylene	0.030		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	7:59	KZ
[VOC Vapor Sampling Tracer]										
Isopropanol (IPA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	7:59	KZ
[VOC Surrogates]										
Dibromofluoromethane	120		%REC	EPA 8260B			70-130	09/29/20	7:59	KZ
Toluene-D8	114		%REC	EPA 8260B			70-130	09/29/20	7:59	KZ
Bromofluorobenzene	108		%REC	EPA 8260B			70-130	09/29/20	7:59	KZ
Sample: 003 <b>SVP-3-7</b>					Date & Time Sampled: 09/29/20 @ 8:45					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: 3										
[TPH Gasoline by GCMS]										
C4-C12	<1.2500		µg/L	LUFT GCMS	0.3	1.2500	2.5	09/29/20	8:55	KZ
[VOCs by GCMS]										
Acetone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	8:55	KZ
t-Amyl Methyl Ether (TAME)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Benzene	0.010	J	µg/L	EPA 8260B	0.1	0.0031	0.013	09/29/20	8:55	KZ
Bromobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Bromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Bromodichloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Bromoform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Bromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
t-Butanol (TBA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	8:55	KZ
2-Butanone (MEK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	8:55	KZ
n-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
sec-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.  
MATHEW HUNT  
6121 QUAIL VALLEY COURT  
RIVERSIDE, CA 92507

Date Reported 10/07/20  
Date Received 09/29/20  
Invoice No. 89856  
Cust # 1422  
Permit Number  
Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 003 <b>SVP-3-7</b>					Date & Time Sampled:			09/29/20	@	8:45
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
tert-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Carbon Disulfide	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	8:55	KZ
Carbon Tetrachloride	<0.0033		µg/L	EPA 8260B	0.1	0.0033	0.0065	09/29/20	8:55	KZ
Chlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Chloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Chloroform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Chloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
2-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
4-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Dibromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,2-Dibromoethane (EDB)	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	8:55	KZ
1,2-Dibromo-3-Chloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	8:55	KZ
Dibromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,2-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,3-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,4-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Dichlorodifluoromethane	<b>1.3</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,1-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,2-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,1-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
cis-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
trans-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,3-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
2,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,1-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
cis-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
trans-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Diisopropyl Ether (DIPE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Ethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.  
MATHEW HUNT  
6121 QUAIL VALLEY COURT  
RIVERSIDE, CA 92507

Date Reported 10/07/20  
Date Received 09/29/20  
Invoice No. 89856  
Cust # 1422  
Permit Number  
Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 003 <b>SVP-3-7</b>					Date & Time Sampled: 09/29/20 @ 8:45					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
Ethyl-t-Butyl Ether (EtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Hexachlorobutadiene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
2-Hexanone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	8:55	KZ
Isopropylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
4-Isopropyltoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Methylene Chloride	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.01	09/29/20	8:55	KZ
4-Methyl-2-Pentanone (MIBK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	8:55	KZ
Methyl-t-butyl Ether (MtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Naphthalene	<0.0042		µg/L	EPA 8260B	0.1	0.0042	0.0065	09/29/20	8:55	KZ
n-Propylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Styrene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,1,1,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,1,2,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Tetrachloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Toluene	<b>0.050</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,2,3-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,2,4-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,1,1-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,1,2-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Trichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,2,3-Trichloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	8:55	KZ
Trichlorofluoromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Trichlorotrifluoroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,2,4-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
1,3,5-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
Vinyl Chloride	<0.0010		µg/L	EPA 8260B	0.1	0.0010	0.0065	09/29/20	8:55	KZ
m,p-Xylenes	<b>0.060</b>		µg/L	EPA 8260B	0.1	0.0130	0.026	09/29/20	8:55	KZ
o-Xylene	<b>0.020</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	8:55	KZ
[VOC Vapor Sampling Tracer]										
Isopropanol (IPA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	8:55	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 003 <b>SVP-3-7</b>					Date & Time Sampled:			09/29/20	@	8:45
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
[VOC Surrogates]										
Dibromofluoromethane	116		%REC	EPA 8260B			70-130	09/29/20	8:55	KZ
Toluene-D8	115		%REC	EPA 8260B			70-130	09/29/20	8:55	KZ
Bromofluorobenzene	108		%REC	EPA 8260B			70-130	09/29/20	8:55	KZ
Sample: 004 <b>SVP-4-7</b>					Date & Time Sampled:			09/29/20	@	9:05
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
[TPH Gasoline by GCMS ]										
C4-C12	<b>1.9</b>	J	µg/L	LUFT GCMS	0.3	1.2500	2.5	09/29/20	9:19	KZ
[VOCs by GCMS]										
Acetone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	9:19	KZ
t-Amyl Methyl Ether (TAME)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Benzene	<b>0.011</b>	J	µg/L	EPA 8260B	0.1	0.0031	0.013	09/29/20	9:19	KZ
Bromobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Bromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Bromodichloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Bromoform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Bromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
t-Butanol (TBA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	9:19	KZ
2-Butanone (MEK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	9:19	KZ
n-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
sec-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
tert-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Carbon Disulfide	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	9:19	KZ
Carbon Tetrachloride	<0.0033		µg/L	EPA 8260B	0.1	0.0033	0.0065	09/29/20	9:19	KZ
Chlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Chloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Chloroform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Chloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 004 <b>SVP-4-7</b>					Date & Time Sampled: 09/29/20 @ 9:05					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
2-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
4-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Dibromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,2-Dibromoethane (EDB)	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	9:19	KZ
1,2-Dibromo-3-Chloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	9:19	KZ
Dibromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,2-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,3-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,4-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Dichlorodifluoromethane	<b>0.98</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,1-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,2-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,1-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
cis-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
trans-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,3-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
2,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,1-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
cis-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
trans-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Diisopropyl Ether (DiPE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Ethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Ethyl-t-Butyl Ether (EtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Hexachlorobutadiene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
2-Hexanone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	9:19	KZ
Isopropylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
4-Isopropyltoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Methylene Chloride	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.01	09/29/20	9:19	KZ
4-Methyl-2-Pentanone (MIBK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	9:19	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 004 <b>SVP-4-7</b>					Date & Time Sampled: 09/29/20 @ 9:05					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
Methyl-t-butyl Ether (MtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Naphthalene	<0.0042		µg/L	EPA 8260B	0.1	0.0042	0.0065	09/29/20	9:19	KZ
n-Propylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Styrene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,1,1,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,1,2,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Toluene	<b>0.070</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,2,3-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,2,4-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,1,1-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,1,2-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Trichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,2,3-Trichloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	9:19	KZ
Trichlorofluoromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Trichlorotrifluoroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,2,4-Trimethylbenzene	<b>0.030</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
1,3,5-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
Vinyl Chloride	<0.0010		µg/L	EPA 8260B	0.1	0.0010	0.0065	09/29/20	9:19	KZ
m,p-Xylenes	<b>0.090</b>		µg/L	EPA 8260B	0.1	0.0130	0.026	09/29/20	9:19	KZ
o-Xylene	<b>0.030</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:19	KZ
[VOC Vapor Sampling Tracer]										
Isopropanol (IPA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	9:19	KZ
[VOC Surrogates]										
Dibromofluoromethane	117		%REC	EPA 8260B			70-130	09/29/20	9:19	KZ
Toluene-D8	116		%REC	EPA 8260B			70-130	09/29/20	9:19	KZ
Bromofluorobenzene	109		%REC	EPA 8260B			70-130	09/29/20	9:19	KZ

Sample: 005 **SVP-1-7**Sample Matrix: **Soil Vapor**

Date &amp; Time Sampled: 09/29/20 @ 9:40



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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.  
MATHEW HUNT  
6121 QUAIL VALLEY COURT  
RIVERSIDE, CA 92507

Date Reported 10/07/20  
Date Received 09/29/20  
Invoice No. 89856  
Cust # 1422  
Permit Number  
Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 005 <b>SVP-1-7</b>					Date & Time Sampled:			09/29/20	@	9:40
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
[TPH Gasoline by GCMS ]										
C4-C12	<b>1.6</b>	J	µg/L	LUFT GCMS	0.3	1.2500	2.5	09/29/20	9:51	KZ
[VOCs by GCMS]										
Acetone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	9:51	KZ
t-Amyl Methyl Ether (TAME)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Benzene	<b>0.010</b>	J	µg/L	EPA 8260B	0.1	0.0031	0.013	09/29/20	9:51	KZ
Bromobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Bromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Bromodichloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Bromoform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Bromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
t-Butanol (TBA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	9:51	KZ
2-Butanone (MEK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	9:51	KZ
n-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
sec-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
tert-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Carbon Disulfide	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	9:51	KZ
Carbon Tetrachloride	<0.0033		µg/L	EPA 8260B	0.1	0.0033	0.0065	09/29/20	9:51	KZ
Chlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Chloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Chloroform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Chloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
2-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
4-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Dibromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
1,2-Dibromoethane (EDB)	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	9:51	KZ
1,2-Dibromo-3-Chloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	9:51	KZ
Dibromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
1,2-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
1,3-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
1,4-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ

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2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 005 <b>SVP-1-7</b>					Date & Time Sampled: 09/29/20 @ 9:40					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
Dichlorodifluoromethane	<b>3.3</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
1,1-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
1,2-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
1,1-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
cis-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
trans-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
1,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
1,3-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
2,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
1,1-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
cis-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
trans-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Diisopropyl Ether (DiPE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Ethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Ethyl-t-Butyl Ether (EtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Hexachlorobutadiene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
2-Hexanone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	9:51	KZ
Isopropylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
4-Isopropyltoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Methylene Chloride	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.01	09/29/20	9:51	KZ
4-Methyl-2-Pentanone (MIBK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	9:51	KZ
Methyl-t-butyl Ether (MtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Naphthalene	<0.0042		µg/L	EPA 8260B	0.1	0.0042	0.0065	09/29/20	9:51	KZ
n-Propylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Styrene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
1,1,1,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
1,1,2,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Tetrachloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Toluene	<b>0.060</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
1,2,3-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ

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RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 005 SVP-1-7					Date & Time Sampled:			09/29/20	@	9:40
Sample Matrix: Soil Vapor										
Purge Volume Sampled: 3										
.....continued										
1,2,4-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
1,1,1-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
1,1,2-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Trichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
1,2,3-Trichloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	9:51	KZ
Trichlorofluoromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Trichlorotrifluoroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
1,2,4-Trimethylbenzene	0.030		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
1,3,5-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
Vinyl Chloride	<0.0010		µg/L	EPA 8260B	0.1	0.0010	0.0065	09/29/20	9:51	KZ
m,p-Xylenes	0.090		µg/L	EPA 8260B	0.1	0.0130	0.026	09/29/20	9:51	KZ
o-Xylene	0.030		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	9:51	KZ
[VOC Vapor Sampling Tracer]										
Isopropanol (IPA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	9:51	KZ
[VOC Surrogates]										
Dibromofluoromethane	117		%REC	EPA 8260B			70-130	09/29/20	9:51	KZ
Toluene-D8	116		%REC	EPA 8260B			70-130	09/29/20	9:51	KZ
Bromofluorobenzene	108		%REC	EPA 8260B			70-130	09/29/20	9:51	KZ
Sample: 006 SVP-6-7					Date & Time Sampled:			09/29/20	@	10:05
Sample Matrix: Soil Vapor										
Purge Volume Sampled: 3										
[TPH Gasoline by GCMS ]										
C4-C12	<1.2500		µg/L	LUFT GCMS	0.3	1.2500	2.5	09/29/20	10:19	KZ
[VOCs by GCMS]										
Acetone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	10:19	KZ
t-Amyl Methyl Ether (TAME)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Benzene	<0.0031		µg/L	EPA 8260B	0.1	0.0031	0.013	09/29/20	10:19	KZ
Bromobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Bromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 006 <b>SVP-6-7</b>					Date & Time Sampled: 09/29/20 @ 10:05					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
Bromodichloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Bromoform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Bromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
t-Butanol (TBA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	10:19	KZ
2-Butanone (MEK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	10:19	KZ
n-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
sec-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
tert-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Carbon Disulfide	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	10:19	KZ
Carbon Tetrachloride	<0.0033		µg/L	EPA 8260B	0.1	0.0033	0.0065	09/29/20	10:19	KZ
Chlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Chloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Chloroform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Chloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
2-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
4-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Dibromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
1,2-Dibromoethane (EDB)	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	10:19	KZ
1,2-Dibromo-3-Chloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	10:19	KZ
Dibromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
1,2-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
1,3-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
1,4-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Dichlorodifluoromethane	<b>0.10</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
1,1-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
1,2-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
1,1-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
cis-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
trans-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
1,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.  
MATHEW HUNT  
6121 QUAIL VALLEY COURT  
RIVERSIDE, CA 92507

Date Reported 10/07/20  
Date Received 09/29/20  
Invoice No. 89856  
Cust # 1422  
Permit Number  
Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 006 <b>SVP-6-7</b>					Date & Time Sampled: 09/29/20 @ 10:05					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
1,3-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
2,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
1,1-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
cis-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
trans-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Diisopropyl Ether (DiPE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Ethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Ethyl-t-Butyl Ether (EtBtE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Hexachlorobutadiene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
2-Hexanone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	10:19	KZ
Isopropylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
4-Isopropyltoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Methylene Chloride	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.01	09/29/20	10:19	KZ
4-Methyl-2-Pentanone (MIBK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	10:19	KZ
Methyl-t-butyl Ether (MtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Naphthalene	<0.0042		µg/L	EPA 8260B	0.1	0.0042	0.0065	09/29/20	10:19	KZ
n-Propylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Styrene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
1,1,1,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
1,1,2,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Tetrachloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Toluene	<b>0.030</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
1,2,3-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
1,2,4-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
1,1,1-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
1,1,2-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Trichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
1,2,3-Trichloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	10:19	KZ
Trichlorofluoromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Trichlorotrifluoroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 006 <b>SVP-6-7</b>					Date & Time Sampled: 09/29/20 @ 10:05					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: 3										
.....continued										
1,2,4-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
1,3,5-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
Vinyl Chloride	<0.0010		µg/L	EPA 8260B	0.1	0.0010	0.0065	09/29/20	10:19	KZ
m,p-Xylenes	<0.0130		µg/L	EPA 8260B	0.1	0.0130	0.026	09/29/20	10:19	KZ
o-Xylene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:19	KZ
[VOC Vapor Sampling Tracer]										
Isopropanol (IPA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	10:19	KZ
[VOC Surrogates]										
Dibromofluoromethane	119		%REC	EPA 8260B			70-130	09/29/20	10:19	KZ
Toluene-D8	115		%REC	EPA 8260B			70-130	09/29/20	10:19	KZ
Bromofluorobenzene	107		%REC	EPA 8260B			70-130	09/29/20	10:19	KZ
Sample: 007 <b>SVP-5-7</b>					Date & Time Sampled: 09/29/20 @ 10:30					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: 3										
[TPH Gasoline by GCMS]										
C4-C12	<b>1.3</b>	J	µg/L	LUFT GCMS	0.3	1.2500	2.5	09/29/20	10:42	KZ
[VOCs by GCMS]										
Acetone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	10:42	KZ
t-Amyl Methyl Ether (TAME)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Benzene	<0.0031		µg/L	EPA 8260B	0.1	0.0031	0.013	09/29/20	10:42	KZ
Bromobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Bromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Bromodichloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Bromoform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Bromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
t-Butanol (TBA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	10:42	KZ
2-Butanone (MEK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	10:42	KZ
n-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
sec-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 007 <b>SVP-5-7</b>					Date & Time Sampled: 09/29/20 @ 10:30					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
tert-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Carbon Disulfide	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	10:42	KZ
Carbon Tetrachloride	<0.0033		µg/L	EPA 8260B	0.1	0.0033	0.0065	09/29/20	10:42	KZ
Chlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Chloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Chloroform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Chloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
2-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
4-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Dibromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,2-Dibromoethane (EDB)	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	10:42	KZ
1,2-Dibromo-3-Chloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	10:42	KZ
Dibromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,2-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,3-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,4-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Dichlorodifluoromethane	<b>2.0</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,1-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,2-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,1-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
cis-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
trans-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,3-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
2,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,1-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
cis-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
trans-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Diisopropyl Ether (DIPE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Ethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.  
MATHEW HUNT  
6121 QUAIL VALLEY COURT  
RIVERSIDE, CA 92507

Date Reported 10/07/20  
Date Received 09/29/20  
Invoice No. 89856  
Cust # 1422  
Permit Number  
Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 007 <b>SVP-5-7</b>					Date & Time Sampled: 09/29/20 @ 10:30					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
Ethyl-t-Butyl Ether (EtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Hexachlorobutadiene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
2-Hexanone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	10:42	KZ
Isopropylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
4-Isopropyltoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Methylene Chloride	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.01	09/29/20	10:42	KZ
4-Methyl-2-Pentanone (MIBK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	10:42	KZ
Methyl-t-butyl Ether (MtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Naphthalene	<0.0042		µg/L	EPA 8260B	0.1	0.0042	0.0065	09/29/20	10:42	KZ
n-Propylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Styrene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,1,1,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,1,2,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Tetrachloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Toluene	<b>0.040</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,2,3-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,2,4-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,1,1-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,1,2-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Trichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,2,3-Trichloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	10:42	KZ
Trichlorofluoromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Trichlorotrifluoroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,2,4-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
1,3,5-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
Vinyl Chloride	<0.0010		µg/L	EPA 8260B	0.1	0.0010	0.0065	09/29/20	10:42	KZ
m,p-Xylenes	<b>0.050</b>		µg/L	EPA 8260B	0.1	0.0130	0.026	09/29/20	10:42	KZ
o-Xylene	<b>0.020</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	10:42	KZ
[VOC Vapor Sampling Tracer]										
Isopropanol (IPA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	10:42	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 007 <b>SVP-5-7</b>					Date & Time Sampled:			09/29/20	@	10:30
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
[VOC Surrogates]										
Dibromofluoromethane	118		%REC	EPA 8260B			70-130	09/29/20	10:42	KZ
Toluene-D8	115		%REC	EPA 8260B			70-130	09/29/20	10:42	KZ
Bromofluorobenzene	108		%REC	EPA 8260B			70-130	09/29/20	10:42	KZ
Sample: 008 <b>SVP-5-7 DUP</b>					Date & Time Sampled:			09/29/20	@	10:30
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
[TPH Gasoline by GCMS ]										
C4-C12	<1.2500		µg/L	LUFT GCMS	0.3	1.2500	2.5	09/29/20	11:08	KZ
[VOCs by GCMS]										
Acetone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	11:08	KZ
t-Amyl Methyl Ether (TAME)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Benzene	<0.0031		µg/L	EPA 8260B	0.1	0.0031	0.013	09/29/20	11:08	KZ
Bromobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Bromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Bromodichloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Bromoform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Bromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
t-Butanol (TBA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	11:08	KZ
2-Butanone (MEK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	11:08	KZ
n-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
sec-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
tert-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Carbon Disulfide	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	11:08	KZ
Carbon Tetrachloride	<0.0033		µg/L	EPA 8260B	0.1	0.0033	0.0065	09/29/20	11:08	KZ
Chlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Chloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Chloroform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Chloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 008 <b>SVP-5-7 DUP</b>					Date & Time Sampled: 09/29/20 @ 10:30					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
2-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
4-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Dibromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,2-Dibromoethane (EDB)	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	11:08	KZ
1,2-Dibromo-3-Chloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	11:08	KZ
Dibromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,2-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,3-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,4-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Dichlorodifluoromethane	<b>1.6</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,1-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,2-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,1-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
cis-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
trans-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,3-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
2,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,1-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
cis-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
trans-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Diisopropyl Ether (DiPE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Ethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Ethyl-t-Butyl Ether (EtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Hexachlorobutadiene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
2-Hexanone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	11:08	KZ
Isopropylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
4-Isopropyltoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Methylene Chloride	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.01	09/29/20	11:08	KZ
4-Methyl-2-Pentanone (MIBK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	11:08	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 008 <b>SVP-5-7 DUP</b>					Date & Time Sampled: 09/29/20 @ 10:30					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
Methyl-t-butyl Ether (MtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Naphthalene	<0.0042		µg/L	EPA 8260B	0.1	0.0042	0.0065	09/29/20	11:08	KZ
n-Propylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Styrene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,1,1,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,1,2,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Toluene	<b>0.030</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,2,3-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,2,4-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,1,1-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,1,2-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Trichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,2,3-Trichloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	11:08	KZ
Trichlorofluoromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Trichlorotrifluoroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,2,4-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
1,3,5-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
Vinyl Chloride	<0.0010		µg/L	EPA 8260B	0.1	0.0010	0.0065	09/29/20	11:08	KZ
m,p-Xylenes	<b>0.040</b>		µg/L	EPA 8260B	0.1	0.0130	0.026	09/29/20	11:08	KZ
o-Xylene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:08	KZ
[VOC Vapor Sampling Tracer]										
Isopropanol (IPA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	11:08	KZ
[VOC Surrogates]										
Dibromofluoromethane	120		%REC	EPA 8260B			70-130	09/29/20	11:08	KZ
Toluene-D8	116		%REC	EPA 8260B			70-130	09/29/20	11:08	KZ
Bromofluorobenzene	108		%REC	EPA 8260B			70-130	09/29/20	11:08	KZ

Sample: 009 **SVP-4-12**Sample Matrix: **Soil Vapor**

Date &amp; Time Sampled: 09/29/20 @ 11:30



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FDA#	2030513
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ELAP#s	2789
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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 009 <b>SVP-4-12</b>					Date & Time Sampled:			09/29/20	@	11:30
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
[TPH Gasoline by GCMS ]										
C4-C12	<1.2500		µg/L	LUFT GCMS	0.3	1.2500	2.5	09/29/20	11:40	KZ
[VOCs by GCMS]										
Acetone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	11:40	KZ
t-Amyl Methyl Ether (TAME)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Benzene	<b>0.012</b>	J	µg/L	EPA 8260B	0.1	0.0031	0.013	09/29/20	11:40	KZ
Bromobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Bromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Bromodichloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Bromoform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Bromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
t-Butanol (TBA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	11:40	KZ
2-Butanone (MEK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	11:40	KZ
n-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
sec-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
tert-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Carbon Disulfide	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	11:40	KZ
Carbon Tetrachloride	<0.0033		µg/L	EPA 8260B	0.1	0.0033	0.0065	09/29/20	11:40	KZ
Chlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Chloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Chloroform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Chloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
2-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
4-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Dibromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
1,2-Dibromoethane (EDB)	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	11:40	KZ
1,2-Dibromo-3-Chloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	11:40	KZ
Dibromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
1,2-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
1,3-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
1,4-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 009 <b>SVP-4-12</b>					Date & Time Sampled: 09/29/20 @ 11:30					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
Dichlorodifluoromethane	<b>0.93</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
1,1-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
1,2-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
1,1-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
cis-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
trans-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
1,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
1,3-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
2,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
1,1-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
cis-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
trans-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Diisopropyl Ether (DiPE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Ethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Ethyl-t-Butyl Ether (EtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Hexachlorobutadiene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
2-Hexanone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	11:40	KZ
Isopropylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
4-Isopropyltoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Methylene Chloride	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.01	09/29/20	11:40	KZ
4-Methyl-2-Pentanone (MIBK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	11:40	KZ
Methyl-t-butyl Ether (MtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Naphthalene	<0.0042		µg/L	EPA 8260B	0.1	0.0042	0.0065	09/29/20	11:40	KZ
n-Propylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Styrene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
1,1,1,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
1,1,2,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Tetrachloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Toluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
1,2,3-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 009 <b>SVP-4-12</b>					Date & Time Sampled:			09/29/20	@	11:30
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
1,2,4-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
1,1,1-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
1,1,2-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Trichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
1,2,3-Trichloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	11:40	KZ
Trichlorofluoromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Trichlorotrifluoroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
1,2,4-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
1,3,5-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
Vinyl Chloride	<0.0010		µg/L	EPA 8260B	0.1	0.0010	0.0065	09/29/20	11:40	KZ
m,p-Xylenes	<0.0130		µg/L	EPA 8260B	0.1	0.0130	0.026	09/29/20	11:40	KZ
o-Xylene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	11:40	KZ
[VOC Vapor Sampling Tracer]										
Isopropanol (IPA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	11:40	KZ
[VOC Surrogates]										
Dibromofluoromethane	115		%REC	EPA 8260B			70-130	09/29/20	11:40	KZ
Toluene-D8	115		%REC	EPA 8260B			70-130	09/29/20	11:40	KZ
Bromofluorobenzene	106		%REC	EPA 8260B			70-130	09/29/20	11:40	KZ
Sample: 010 <b>SVP-5-12</b>					Date & Time Sampled:			09/29/20	@	12:08
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
[TPH Gasoline by GCMS ]										
C4-C12	<b>1.3</b>	J	µg/L	LUFT GCMS	0.3	1.2500	2.5	09/29/20	12:18	KZ
[VOCs by GCMS]										
Acetone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	12:18	KZ
t-Amyl Methyl Ether (TAME)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Benzene	<0.0031		µg/L	EPA 8260B	0.1	0.0031	0.013	09/29/20	12:18	KZ
Bromobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Bromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 010 <b>SVP-5-12</b>					Date & Time Sampled: 09/29/20 @ 12:08					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
Bromodichloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Bromoform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Bromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
t-Butanol (TBA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	12:18	KZ
2-Butanone (MEK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	12:18	KZ
n-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
sec-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
tert-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Carbon Disulfide	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	12:18	KZ
Carbon Tetrachloride	<0.0033		µg/L	EPA 8260B	0.1	0.0033	0.0065	09/29/20	12:18	KZ
Chlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Chloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Chloroform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Chloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
2-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
4-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Dibromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
1,2-Dibromoethane (EDB)	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	12:18	KZ
1,2-Dibromo-3-Chloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	12:18	KZ
Dibromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
1,2-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
1,3-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
1,4-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Dichlorodifluoromethane	<b>2.0</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
1,1-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
1,2-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
1,1-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
cis-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
trans-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
1,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ

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## CERTIFICATE OF ANALYSIS

**2009-00236**

**LOR GEOTECHNICAL GROUP, INC.**  
**MATHEW HUNT**  
**6121 QUAIL VALLEY COURT**  
**RIVERSIDE, CA 92507**

Date Reported 10/07/20  
Date Received 09/29/20  
Invoice No. 89856  
Cust # 1422  
Permit Number  
Customer P.O.

**Project: 637 W. Struck Ave., Orange, CA 92867**

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 010 <b>SVP-5-12</b>					Date & Time Sampled: 09/29/20 @ 12:08					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
1,3-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
2,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
1,1-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
cis-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
trans-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Diisopropyl Ether (DiPE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Ethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Ethyl-t-Butyl Ether (EtBtE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Hexachlorobutadiene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
2-Hexanone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	12:18	KZ
Isopropylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
4-Isopropyltoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Methylene Chloride	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.01	09/29/20	12:18	KZ
4-Methyl-2-Pentanone (MIBK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	12:18	KZ
Methyl-t-butyl Ether (MtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Naphthalene	<0.0042		µg/L	EPA 8260B	0.1	0.0042	0.0065	09/29/20	12:18	KZ
n-Propylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Styrene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
1,1,1,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
1,1,2,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Tetrachloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Toluene	<b>0.040</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
1,2,3-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
1,2,4-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
1,1,1-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
1,1,2-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Trichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
1,2,3-Trichloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	12:18	KZ
Trichlorofluoromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Trichlorotrifluoroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 010 <b>SVP-5-12</b>					Date & Time Sampled:			09/29/20	@	12:08
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
1,2,4-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
1,3,5-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
Vinyl Chloride	<0.0010		µg/L	EPA 8260B	0.1	0.0010	0.0065	09/29/20	12:18	KZ
m,p-Xylenes	<b>0.050</b>		µg/L	EPA 8260B	0.1	0.0130	0.026	09/29/20	12:18	KZ
o-Xylene	<b>0.020</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	12:18	KZ
[VOC Vapor Sampling Tracer]										
Isopropanol (IPA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	12:18	KZ
[VOC Surrogates]										
Dibromofluoromethane	117		%REC	EPA 8260B			70-130	09/29/20	12:18	KZ
Toluene-D8	116		%REC	EPA 8260B			70-130	09/29/20	12:18	KZ
Bromofluorobenzene	107		%REC	EPA 8260B			70-130	09/29/20	12:18	KZ
Sample: 011 <b>SVP-1-12</b>					Date & Time Sampled:			09/29/20	@	12:55
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
[TPH Gasoline by GCMS ]										
C4-C12	<1.2500		µg/L	LUFT GCMS	0.3	1.2500	2.5	09/29/20	1:07	KZ
[VOCs by GCMS]										
Acetone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:07	KZ
t-Amyl Methyl Ether (TAME)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Benzene	<0.0031		µg/L	EPA 8260B	0.1	0.0031	0.013	09/29/20	1:07	KZ
Bromobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Bromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Bromodichloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Bromoform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Bromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
t-Butanol (TBA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:07	KZ
2-Butanone (MEK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:07	KZ
n-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
sec-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.  
MATHEW HUNT  
6121 QUAIL VALLEY COURT  
RIVERSIDE, CA 92507

Date Reported 10/07/20  
Date Received 09/29/20  
Invoice No. 89856  
Cust # 1422  
Permit Number  
Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 011 <b>SVP-1-12</b>					Date & Time Sampled: 09/29/20 @ 12:55					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
tert-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Carbon Disulfide	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:07	KZ
Carbon Tetrachloride	<0.0033		µg/L	EPA 8260B	0.1	0.0033	0.0065	09/29/20	1:07	KZ
Chlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Chloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Chloroform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Chloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
2-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
4-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Dibromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,2-Dibromoethane (EDB)	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	1:07	KZ
1,2-Dibromo-3-Chloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	1:07	KZ
Dibromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,2-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,3-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,4-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Dichlorodifluoromethane	<b>2.9</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,1-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,2-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,1-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
cis-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
trans-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,3-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
2,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,1-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
cis-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
trans-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Diisopropyl Ether (DIPE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Ethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 011 <b>SVP-1-12</b>					Date & Time Sampled: 09/29/20 @ 12:55					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
Ethyl-t-Butyl Ether (EtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Hexachlorobutadiene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
2-Hexanone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:07	KZ
Isopropylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
4-Isopropyltoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Methylene Chloride	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.01	09/29/20	1:07	KZ
4-Methyl-2-Pentanone (MIBK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:07	KZ
Methyl-t-butyl Ether (MtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Naphthalene	<0.0042		µg/L	EPA 8260B	0.1	0.0042	0.0065	09/29/20	1:07	KZ
n-Propylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Styrene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,1,1,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,1,2,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Tetrachloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Toluene	<b>0.040</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,2,3-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,2,4-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,1,1-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,1,2-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Trichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,2,3-Trichloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	1:07	KZ
Trichlorofluoromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Trichlorotrifluoroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,2,4-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
1,3,5-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
Vinyl Chloride	<0.0010		µg/L	EPA 8260B	0.1	0.0010	0.0065	09/29/20	1:07	KZ
m,p-Xylenes	<b>0.050</b>		µg/L	EPA 8260B	0.1	0.0130	0.026	09/29/20	1:07	KZ
o-Xylene	<b>0.020</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:07	KZ
[VOC Vapor Sampling Tracer]										
Isopropanol (IPA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:07	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 011 <b>SVP-1-12</b>					Date & Time Sampled:			09/29/20	@	12:55
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
[VOC Surrogates]										
Dibromofluoromethane	115		%REC	EPA 8260B			70-130	09/29/20	1:07	KZ
Toluene-D8	116		%REC	EPA 8260B			70-130	09/29/20	1:07	KZ
Bromofluorobenzene	108		%REC	EPA 8260B			70-130	09/29/20	1:07	KZ
Sample: 012 <b>SVP-3-12</b>					Date & Time Sampled:			09/29/20	@	13:10
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
[TPH Gasoline by GCMS ]										
C4-C12	<b>1.5</b>	J	µg/L	LUFT GCMS	0.3	1.2500	2.5	09/29/20	1:31	KZ
[VOCs by GCMS]										
Acetone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:31	KZ
t-Amyl Methyl Ether (TAME)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Benzene	<0.0031		µg/L	EPA 8260B	0.1	0.0031	0.013	09/29/20	1:31	KZ
Bromobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Bromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Bromodichloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Bromoform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Bromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
t-Butanol (TBA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:31	KZ
2-Butanone (MEK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:31	KZ
n-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
sec-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
tert-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Carbon Disulfide	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:31	KZ
Carbon Tetrachloride	<0.0033		µg/L	EPA 8260B	0.1	0.0033	0.0065	09/29/20	1:31	KZ
Chlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Chloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Chloroform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Chloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ

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	2790
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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 012 <b>SVP-3-12</b>					Date & Time Sampled: 09/29/20 @ 13:10					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
2-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
4-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Dibromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,2-Dibromoethane (EDB)	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	1:31	KZ
1,2-Dibromo-3-Chloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	1:31	KZ
Dibromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,2-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,3-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,4-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Dichlorodifluoromethane	<b>1.8</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,1-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,2-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,1-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
cis-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
trans-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,3-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
2,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,1-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
cis-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
trans-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Diisopropyl Ether (DiPE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Ethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Ethyl-t-Butyl Ether (EtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Hexachlorobutadiene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
2-Hexanone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:31	KZ
Isopropylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
4-Isopropyltoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Methylene Chloride	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.01	09/29/20	1:31	KZ
4-Methyl-2-Pentanone (MIBK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:31	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.  
MATHEW HUNT  
6121 QUAIL VALLEY COURT  
RIVERSIDE, CA 92507

Date Reported 10/07/20  
Date Received 09/29/20  
Invoice No. 89856  
Cust # 1422  
Permit Number  
Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 012 <b>SVP-3-12</b>					Date & Time Sampled: 09/29/20 @ 13:10					
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
Methyl-t-butyl Ether (MtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Naphthalene	<0.0042		µg/L	EPA 8260B	0.1	0.0042	0.0065	09/29/20	1:31	KZ
n-Propylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Styrene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,1,1,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,1,2,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Tetrachloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Toluene	<b>0.040</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,2,3-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,2,4-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,1,1-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,1,2-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Trichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,2,3-Trichloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	1:31	KZ
Trichlorofluoromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Trichlorotrifluoroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,2,4-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
1,3,5-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
Vinyl Chloride	<0.0010		µg/L	EPA 8260B	0.1	0.0010	0.0065	09/29/20	1:31	KZ
m,p-Xylenes	<b>0.040</b>		µg/L	EPA 8260B	0.1	0.0130	0.026	09/29/20	1:31	KZ
o-Xylene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:31	KZ
[VOC Vapor Sampling Tracer]										
Isopropanol (IPA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:31	KZ
[VOC Surrogates]										
Dibromofluoromethane	118		%REC	EPA 8260B			70-130	09/29/20	1:31	KZ
Toluene-D8	117		%REC	EPA 8260B			70-130	09/29/20	1:31	KZ
Bromofluorobenzene	109		%REC	EPA 8260B			70-130	09/29/20	1:31	KZ

Sample: 013 **SVP-7-12**  
Sample Matrix: **Soil Vapor**

Date & Time Sampled: 09/29/20 @ 13:45



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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 013 <b>SVP-7-12</b>					Date & Time Sampled:			09/29/20	@	13:45
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
[TPH Gasoline by GCMS ]										
C4-C12	<b>5.2</b>		µg/L	LUFT GCMS	0.3	1.2500	2.5	09/29/20	1:56	KZ
[VOCs by GCMS]										
Acetone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:56	KZ
t-Amyl Methyl Ether (TAME)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Benzene	<0.0031		µg/L	EPA 8260B	0.1	0.0031	0.013	09/29/20	1:56	KZ
Bromobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Bromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Bromodichloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Bromoform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Bromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
t-Butanol (TBA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:56	KZ
2-Butanone (MEK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:56	KZ
n-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
sec-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
tert-Butylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Carbon Disulfide	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:56	KZ
Carbon Tetrachloride	<0.0033		µg/L	EPA 8260B	0.1	0.0033	0.0065	09/29/20	1:56	KZ
Chlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Chloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Chloroform	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Chloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
2-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
4-Chlorotoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Dibromochloromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
1,2-Dibromoethane (EDB)	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	1:56	KZ
1,2-Dibromo-3-Chloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	1:56	KZ
Dibromomethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
1,2-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
1,3-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
1,4-Dichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ

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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.  
MATHEW HUNT  
6121 QUAIL VALLEY COURT  
RIVERSIDE, CA 92507

Date Reported 10/07/20  
Date Received 09/29/20  
Invoice No. 89856  
Cust # 1422  
Permit Number  
Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 013 <b>SVP-7-12</b>					Date & Time Sampled:			09/29/20	@	13:45
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
Dichlorodifluoromethane	<b>0.13</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
1,1-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
1,2-Dichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
1,1-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
cis-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
trans-1,2-Dichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
1,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
1,3-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
2,2-Dichloropropane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
1,1-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
cis-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
trans-1,3-Dichloropropene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Diisopropyl Ether (DiPE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Ethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Ethyl-t-Butyl Ether (EtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Hexachlorobutadiene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
2-Hexanone	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:56	KZ
Isopropylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
4-Isopropyltoluene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Methylene Chloride	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.01	09/29/20	1:56	KZ
4-Methyl-2-Pentanone (MIBK)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:56	KZ
Methyl-t-butyl Ether (MtBE)	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Naphthalene	<0.0042		µg/L	EPA 8260B	0.1	0.0042	0.0065	09/29/20	1:56	KZ
n-Propylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Styrene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
1,1,1,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
1,1,2,2-Tetrachloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Tetrachloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Toluene	<b>0.060</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
1,2,3-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ

The data and information on this, and other accompanying documents, represent only the sample(s) analyzed and is rendered upon condition that it is not to be reproduced, wholly or in part, for advertising or other purposes without approval from the laboratory.

USDA-EPA-NIOSH Testing Food Sanitation Consulting Chemical and Microbiological Analyses and Research



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LA City#	10261
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## CERTIFICATE OF ANALYSIS

2009-00236

LOR GEOTECHNICAL GROUP, INC.

MATHEW HUNT

6121 QUAIL VALLEY COURT

RIVERSIDE, CA 92507

Date Reported 10/07/20

Date Received 09/29/20

Invoice No. 89856

Cust # 1422

Permit Number

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

Analysis	Result	Qual	Units	Method	DF	MDL	RL	Date	Time	Tech
Sample: 013 <b>SVP-7-12</b>					Date & Time Sampled:			09/29/20	@	13:45
Sample Matrix: <b>Soil Vapor</b>										
Purge Volume Sampled: <b>3</b>										
.....continued										
1,2,4-Trichlorobenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
1,1,1-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
1,1,2-Trichloroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Trichloroethene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
1,2,3-Trichloropropane	<0.0026		µg/L	EPA 8260B	0.1	0.0026	0.013	09/29/20	1:56	KZ
Trichlorofluoromethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Trichlorotrifluoroethane	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
1,2,4-Trimethylbenzene	<b>0.040</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
1,3,5-Trimethylbenzene	<0.0065		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
Vinyl Chloride	<0.0010		µg/L	EPA 8260B	0.1	0.0010	0.0065	09/29/20	1:56	KZ
m,p-Xylenes	<b>0.38</b>		µg/L	EPA 8260B	0.1	0.0130	0.026	09/29/20	1:56	KZ
o-Xylene	<b>0.21</b>		µg/L	EPA 8260B	0.1	0.0065	0.013	09/29/20	1:56	KZ
[VOC Vapor Sampling Tracer]										
Isopropanol (IPA)	<0.0650		µg/L	EPA 8260B	0.1	0.0650	0.13	09/29/20	1:56	KZ
[VOC Surrogates]										
Dibromofluoromethane	119		%REC	EPA 8260B			70-130	09/29/20	1:56	KZ
Toluene-D8	116		%REC	EPA 8260B			70-130	09/29/20	1:56	KZ
Bromofluorobenzene	101		%REC	EPA 8260B			70-130	09/29/20	1:56	KZ

Respectfully Submitted:

Ken Zheng - President



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### QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL.  
B1 = BOD dilution water is over specifications. The reported result may be biased high.  
D = Surrogate recoveries are not calculated due to sample dilution.  
E = Estimated value; Value exceeds calibration level of instrument.  
H = Analyte was prepared and/or analyzed outside of the analytical method holding time  
I = Matrix Interference.  
J = Analyte concentration detected between RL and MDL.  
Q = One or more quality control criteria did not meet specifications. See Comments for further explanation.  
S = Customer provided specification limit exceeded.

### ABBREVIATIONS

DF = Dilution Factor  
RL = Reporting Limit, Adjusted by DF  
MDL = Method Detection Limit, Adjusted by DF  
Qual = Qualifier  
Tech = Technician

*As regulatory limits change frequently, A & R Laboratories advises the recipient of this report to confirm such limits with the appropriate federal, state, or local authorities before acting in reliance on the regulatory limits provided.*

*For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.*





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## QUALITY CONTROL DATA REPORT

LOR GEOTECHNICAL GROUP, INC.

2009-00236

RIVERSIDE, CA 92507

Date Reported 10/07/2020

Date Received 09/29/2020

Date Sampled 09/29/2020

Invoice No. 89856

Customer # 1422

Customer P.O.

Project: 637 W. Struck Ave., Orange, CA 92867

### Method # EPA 8260B

QC Reference # 91959 Date Analyzed: 9/29/2020 Technician: KZ

Samples 001 002 003 004 005 006 007 008 009 010 011 012 013

#### Results

	LCS %REC	LCS %DUP	LCS %RPD	BLKSRR% REC
--	----------	----------	----------	----------------

1,1-Dichloroethene	88	87	1.1	
Benzene	87	86	0.6	
Bromofluorobenzene				89
Chlorobenzene	88	89	0.7	
Dibromofluoromethan				103
Toluene	86	86	0.2	
Toluene-D8				96
Trichloroethene	79	79	0.6	

#### Control Ranges

LCS %REC	LCS %RPD	BLKSRR%REC
----------	----------	------------

70 - 130	0 - 25	
70 - 130	0 - 25	
		50 - 150
70 - 130	0 - 25	
		50 - 150
70 - 130	0 - 25	
		50 - 150
70 - 130	0 - 25	

### Method # LUFT GCMS

QC Reference # 91855 Date Analyzed: 9/29/2020 Technician: KZ

Samples 001 002 003 004 005 006 007 008 009 010 011 012 013

#### Results

	LCS %REC	LCS %DUP	LCS %RPD
--	----------	----------	----------

C4-C12	80	77	4.3
--------	----	----	-----

#### Control Ranges

LCS %REC	LCS %RPD
----------	----------

70 - 130	0 - 25
----------	--------



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## QUALITY CONTROL DATA REPORT

LOR GEOTECHNICAL GROUP, INC.

2009-00236

Date Reported

10/07/2020

Date Received

09/29/2020

Date Sampled

09/29/2020

Project: 637 W. Struck Ave., Orange, CA 92867

### Method blank results

Ref	Test Name	Result	Qualif	Units	MDL	Ref	Test Name	Result	Qualif	Units	MDL
91855	C4-C12	<1.2500		µg/L	1.2500		2-Hexanone	<0.0650		µg/L	0.0650
91959	Acetone	<0.0650		µg/L	0.0650		Isopropylbenzene	<0.0065		µg/L	0.0065
	t-Amyl Methyl Ether (TAME)	<0.0065		µg/L	0.0065		4-Isopropyltoluene	<0.0065		µg/L	0.0065
	Benzene	<0.0031		µg/L	0.0031		Methylene Chloride	<0.0065		µg/L	0.0065
	Bromobenzene	<0.0065		µg/L	0.0065		4-Methyl-2-Pentanone (MIBK)	<0.0650		µg/L	0.0650
	Bromochloromethane	<0.0065		µg/L	0.0065		Methyl-t-butyl Ether (MtBE)	<0.0065		µg/L	0.0065
	Bromodichloromethane	<0.0065		µg/L	0.0065		Naphthalene	<0.0042		µg/L	0.0042
	Bromoform	<0.0065		µg/L	0.0065		n-Propylbenzene	<0.0065		µg/L	0.0065
	Bromomethane	<0.0065		µg/L	0.0065		Styrene	<0.0065		µg/L	0.0065
	t-Butanol (TBA)	<0.0650		µg/L	0.0650		1,1,1,2-Tetrachloroethane	<0.0065		µg/L	0.0065
	2-Butanone (MEK)	<0.0650		µg/L	0.0650		1,1,2,2-Tetrachloroethane	<0.0065		µg/L	0.0065
	n-Butylbenzene	<0.0065		µg/L	0.0065		Tetrachloroethene	<0.0065		µg/L	0.0065
	sec-Butylbenzene	<0.0065		µg/L	0.0065		Toluene	<0.0065		µg/L	0.0065
	tert-Butylbenzene	<0.0065		µg/L	0.0065		1,2,3-Trichlorobenzene	<0.0065		µg/L	0.0065
	Carbon Disulfide	<0.0650		µg/L	0.0650		1,2,4-Trichlorobenzene	<0.0065		µg/L	0.0065
	Carbon Tetrachloride	<0.0033		µg/L	0.0033		1,1,1-Trichloroethane	<0.0065		µg/L	0.0065
	Chlorobenzene	<0.0065		µg/L	0.0065		1,1,2-Trichloroethane	<0.0065		µg/L	0.0065
	Chloroethane	<0.0065		µg/L	0.0065		Trichloroethene	<0.0065		µg/L	0.0065
	Chloroform	<0.0065		µg/L	0.0065		1,2,3-Trichloropropane	<0.0026		µg/L	0.0026
	Chloromethane	<0.0065		µg/L	0.0065		Trichlorofluoromethane	<0.0065		µg/L	0.0065
	2-Chlorotoluene	<0.0065		µg/L	0.0065		Trichlorotrifluoroethane	<0.0065		µg/L	0.0065
	4-Chlorotoluene	<0.0065		µg/L	0.0065		1,2,4-Trimethylbenzene	<0.0065		µg/L	0.0065
	Dibromochloromethane	<0.0065		µg/L	0.0065		1,3,5-Trimethylbenzene	<0.0065		µg/L	0.0065
	1,2-Dibromoethane (EDB)	<0.0026		µg/L	0.0026		Vinyl Chloride	<0.0010		µg/L	0.0010
	1,2-Dibromo-3-Chloropropane	<0.0026		µg/L	0.0026		m,p-Xylenes	<0.0130		µg/L	0.0130
	Dibromomethane	<0.0065		µg/L	0.0065		o-Xylene	<0.0065		µg/L	0.0065
	1,2-Dichlorobenzene	<0.0065		µg/L	0.0065		Isopropanol (IPA)	<0.0650		µg/L	0.0650
	1,3-Dichlorobenzene	<0.0065		µg/L	0.0065						
	1,4-Dichlorobenzene	<0.0065		µg/L	0.0065						
	Dichlorodifluoromethane	<0.0065		µg/L	0.0065						
	1,1-Dichloroethane	<0.0065		µg/L	0.0065						
	1,2-Dichloroethane	<0.0065		µg/L	0.0065						
	1,1-Dichloroethene	<0.0065		µg/L	0.0065						
	cis-1,2-Dichloroethene	<0.0065		µg/L	0.0065						
	trans-1,2-Dichloroethene	<0.0065		µg/L	0.0065						
	1,2-Dichloropropane	<0.0065		µg/L	0.0065						
	1,3-Dichloropropane	<0.0065		µg/L	0.0065						
	2,2-Dichloropropane	<0.0065		µg/L	0.0065						
	1,1-Dichloropropene	<0.0065		µg/L	0.0065						
	cis-1,3-Dichloropropene	<0.0065		µg/L	0.0065						
	trans-1,3-Dichloropropene	<0.0065		µg/L	0.0065						
	Diisopropyl Ether (DIPE)	<0.0065		µg/L	0.0065						
	Ethylbenzene	<0.0065		µg/L	0.0065						
	Ethyl-t-Butyl Ether (EtBE)	<0.0065		µg/L	0.0065						
	Hexachlorobutadiene	<0.0065		µg/L	0.0065						



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### QUALITY CONTROL DATA REPORT

LOR GEOTECHNICAL GROUP, INC.

**2009-00236**

Date Reported 10/07/2020

Date Received 09/29/2020

Date Sampled 09/29/2020

Project: 637 W. Struck Ave., Orange, CA 92867

*Respectfully Submitted:*

Ken Zheng - President

*For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at [office@arlaboratories.com](mailto:office@arlaboratories.com).*



Client Name <b>LOR</b>				<input type="checkbox"/> Chilled <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Seal		Analyses Requested										Turn Around Time Requested	
E-mail <b>mhunt@lorgeo.com</b>						EPA8260B (VOCs & Oxygenates)    EPA8260B(BTEX & Oxygenates)    LUFT / 8015 (Gasoline)    LUFT / 8015 (Diesel)    EPA8081A (Organochlorine Pesticides)    EPA 8082 (PCBs)    EPA 8015M (Carbon Chain C4-C40)    EPA 6010B/7000 (CAM 17 Metals)    Micro: Plate Cnt., Coliform, E-Coli										<input type="checkbox"/> Rush 8 12 24 48 Hours  <input type="checkbox"/> Normal <b>MOBILE</b>	
Address <b>6121 Quail Valley Court, Riverside, CA 92507</b>				Report Attention: <b>Mathew Hunt</b> Phone # <b>951-653-1760</b> Sampled By													
Project No./ Name		Project Site <b>637 W struck Ave., Orange. CA</b>															
Lab # <small>(Lab use)</small>	Client Sample ID	Sample Collection		Matrix Type	Sample Preserve	No., type* & size of container											Remarks
		Date	Time														
1	SVP-7-7	9/29/20	7:20	Air		250ml G	X	X								3/2V	
2	SVP-2-7		7:48														
3	SVP-3-7		8:45														
4	SVP-4-7		9:05														
5	SVP-1-7		9:40														
6	SVP-6-7		10:05														
7	SVP-5-7		10:30														
8	SVP-5-7 DWP		10:30														
9	SVP-4-12		11:30														
10	SVP-5-12		12:08														
11	SVP-1-12		12:55														
12	SVP-3-12	↓	13:40	↓			↓	↓									
13	SVP-7-12	↓	13:45	X			↓	↓									
Relinquished By <b>Mathew Hunt</b> Company <b>LOR</b>		Date <b>9/29/20</b>	Time <b>14:20</b>	Received By <b>[Signature]</b> Company <b>ARL</b>		Date <b>9/29/20</b>	Time <b>14:20</b>	Note: Samples are discarded 30 days after results are reported unless other arrangements are made.									
Relinquished By		Date	Time	Received By		Date	Time										

## **Attachment 9. OCY IPaC Explore Location**

# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Orange County, California



## Local office

Carlsbad Fish And Wildlife Office

☎ (760) 431-9440

📠 (760) 431-5901

2177 Salk Avenue - Suite 250  
Carlsbad, CA 92008-7385

<http://www.fws.gov/carlsbad/>



# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Birds

NAME

STATUS



**Coastal California Gnatcatcher** *Poliophtila californica californica* **Threatened**  
 There is **final** critical habitat for this species. Your location is outside the critical habitat.  
<https://ecos.fws.gov/ecp/species/8178>

**Least Bell's Vireo** *Vireo bellii pusillus* **Endangered**  
 There is **final** critical habitat for this species. Your location is outside the critical habitat.  
<https://ecos.fws.gov/ecp/species/5945>

## Fishes

NAME	STATUS
<b>Santa Ana Sucker</b> <i>Catostomus santaanae</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/3785">https://ecos.fws.gov/ecp/species/3785</a>	<b>Threatened</b>

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>

- Nationwide conservation measures for birds

<http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

**Allen's Hummingbird** *Selasphorus sasin*

Breeds Feb 1 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9637>

**Bald Eagle** *Haliaeetus leucocephalus*

Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

<b>Black Skimmer</b> <i>Rynchops niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/5234">https://ecos.fws.gov/ecp/species/5234</a>	Breeds May 20 to Sep 15
<b>Black-chinned Sparrow</b> <i>Spizella atrogularis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9447">https://ecos.fws.gov/ecp/species/9447</a>	Breeds Apr 15 to Jul 31
<b>California Thrasher</b> <i>Toxostoma redivivum</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
<b>Clark's Grebe</b> <i>Aechmophorus clarkii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Dec 31
<b>Common Yellowthroat</b> <i>Geothlypis trichas sinuosa</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <a href="https://ecos.fws.gov/ecp/species/2084">https://ecos.fws.gov/ecp/species/2084</a>	Breeds May 20 to Jul 31
<b>Costa's Hummingbird</b> <i>Calypte costae</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <a href="https://ecos.fws.gov/ecp/species/9470">https://ecos.fws.gov/ecp/species/9470</a>	Breeds Jan 15 to Jun 10
<b>Golden Eagle</b> <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1680">https://ecos.fws.gov/ecp/species/1680</a>	Breeds Jan 1 to Aug 31
<b>Lawrence's Goldfinch</b> <i>Carduelis lawrencei</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9464">https://ecos.fws.gov/ecp/species/9464</a>	Breeds Mar 20 to Sep 20
<b>Long-billed Curlew</b> <i>Numenius americanus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/5511">https://ecos.fws.gov/ecp/species/5511</a>	Breeds elsewhere

**Marbled Godwit** *Limosa fedoa*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9481>

Breeds elsewhere

**Nuttall's Woodpecker** *Picoides nuttallii*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/9410>

Breeds Apr 1 to Jul 20

**Oak Titmouse** *Baeolophus inornatus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9656>

Breeds Mar 15 to Jul 15

**Rufous Hummingbird** *Selasphorus rufus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8002>

Breeds elsewhere

**Short-billed Dowitcher** *Limnodromus griseus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9480>

Breeds elsewhere

**Song Sparrow** *Melospiza melodia*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Breeds Feb 20 to Sep 5

**Spotted Towhee** *Pipilo maculatus clementae*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/4243>

Breeds Apr 15 to Jul 20

**Whimbrel** *Numenius phaeopus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9483>

Breeds elsewhere

**Willet** *Tringa semipalmata*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds elsewhere

**Wrentit** *Chamaea fasciata*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Mar 15 to Aug 10

# Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

## Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

## Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

## Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

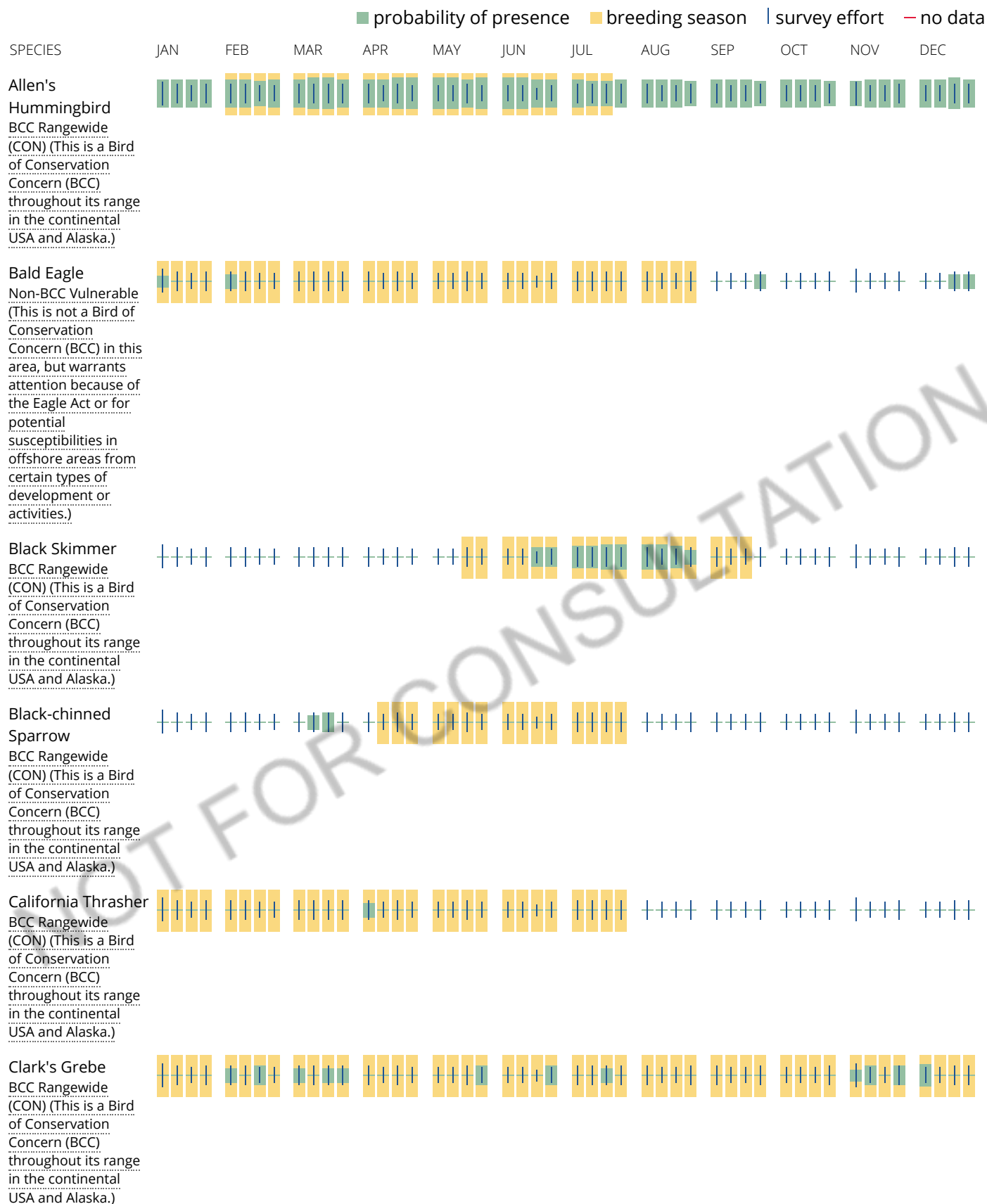
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

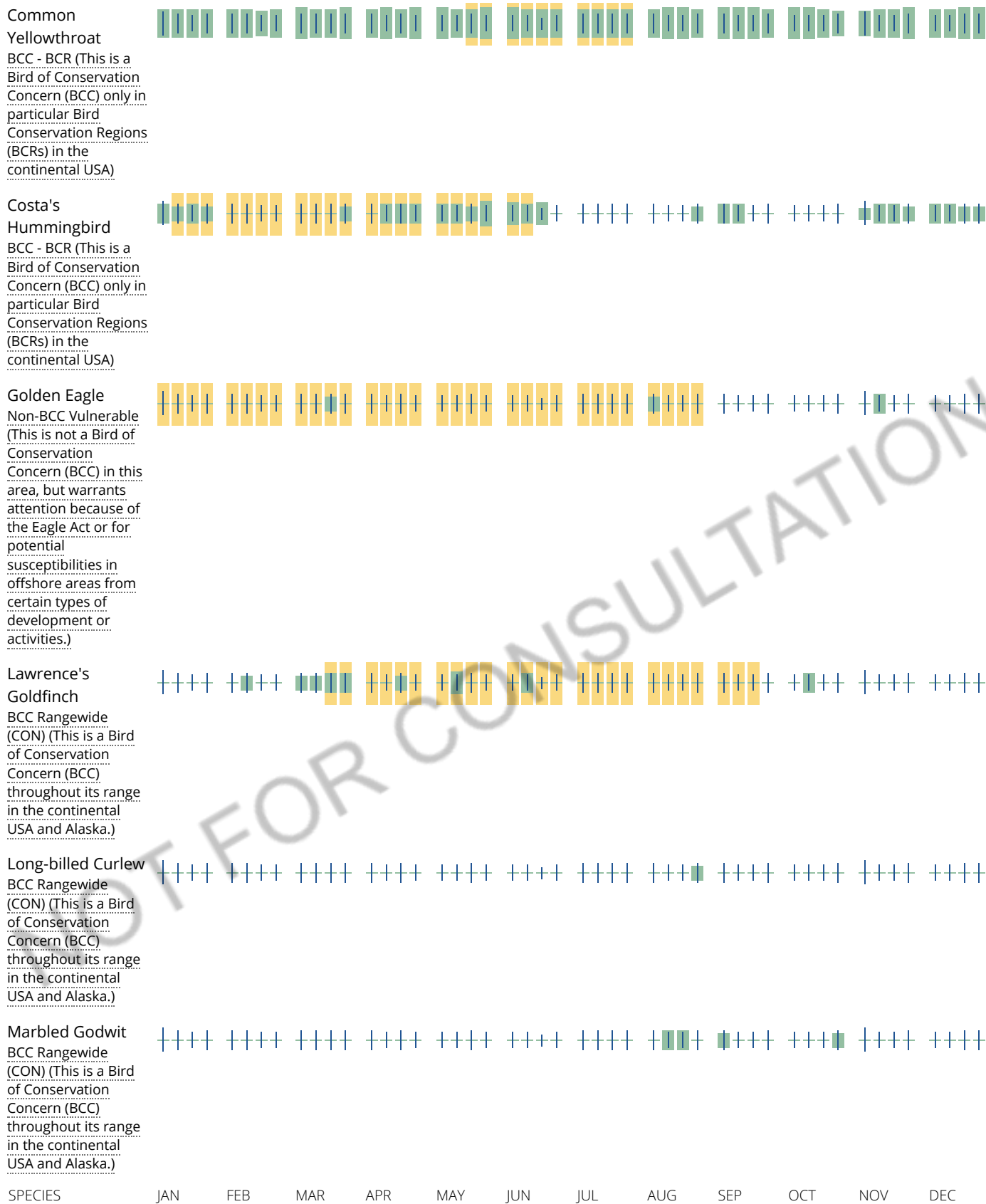
## No Data (—)

A week is marked as having no data if there were no survey events for that week.

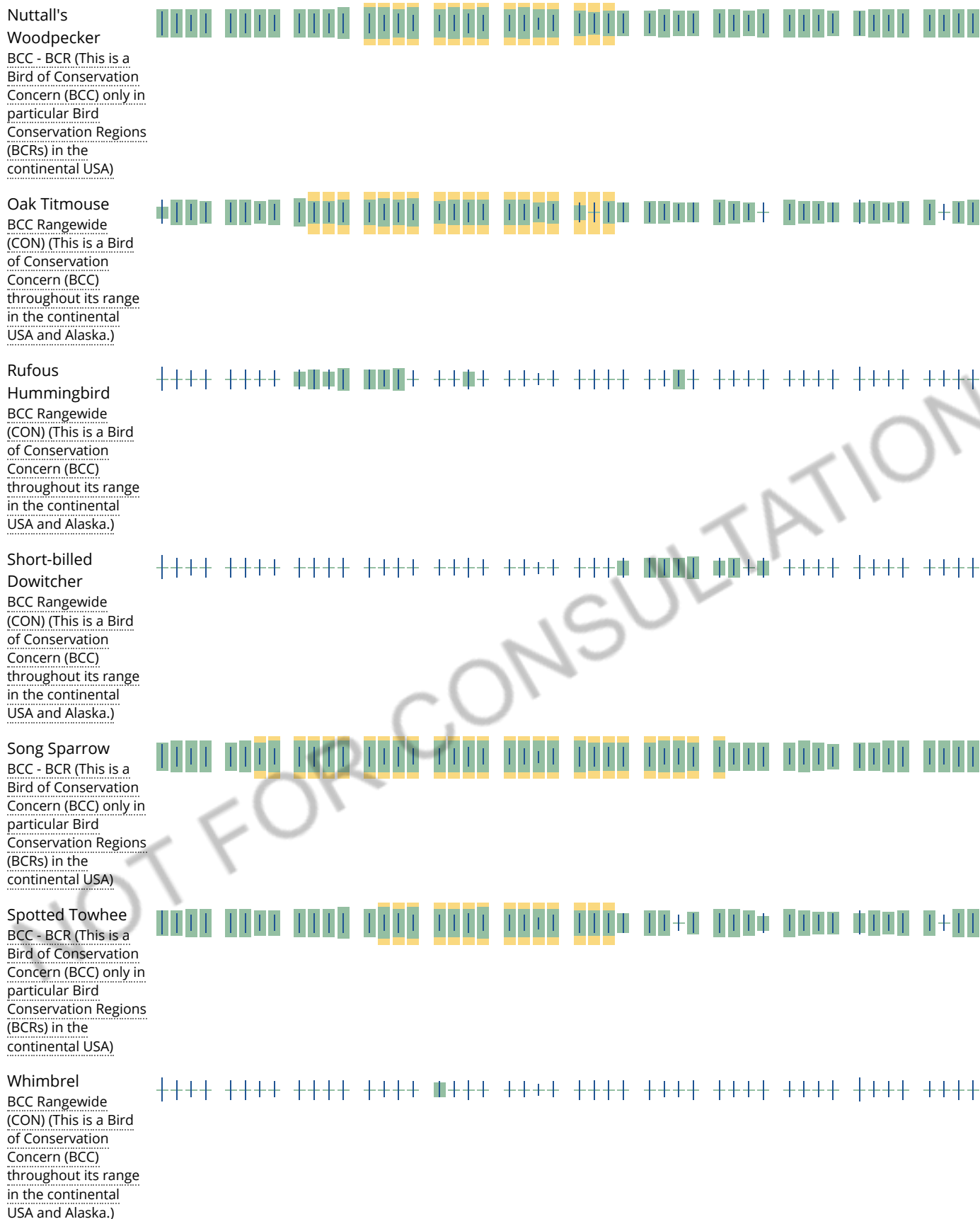
## Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.









[illegible]

**Wrentit**  
**BCC Rangewide**  
**(CON) (This is a Bird**  
**of Conservation**  
**Concern (BCC)**  
**throughout its range**  
**in the continental**  
**USA and Alaska.)**

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the [Probability of Presence Summary](#) and then click on the "Tell me about these graphs" link.

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds](#)

[guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

### What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

### Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or

minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

### Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

### Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

#### Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

**Data exclusions**

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

**Data precautions**

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

**Attachment 10. OCY Important Farmland Finder Screenshot**

Show search results for 637 W ...



Orange

Search result

637 W Struck Ave, Orange, California, 92867

[Zoom to](#)



## Legend

### County Boundaries

County Boundaries



### California Important Farmland: Most Recent

Most Recent

- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Grazing Land
- Farmland of Local Importance
- Farmland of Local Potential
- Other Land
- Confined Animal Agriculture
- Nonagricultural or Natural Vegetation
- Vacant or Disturbed Land
- Rural Residential Land
- Semi-agricultural and Rural Commercial Land
- Urban and Built-Up Land
- Water Area
- Irrigated Farmland
- Nonirrigated Farmland

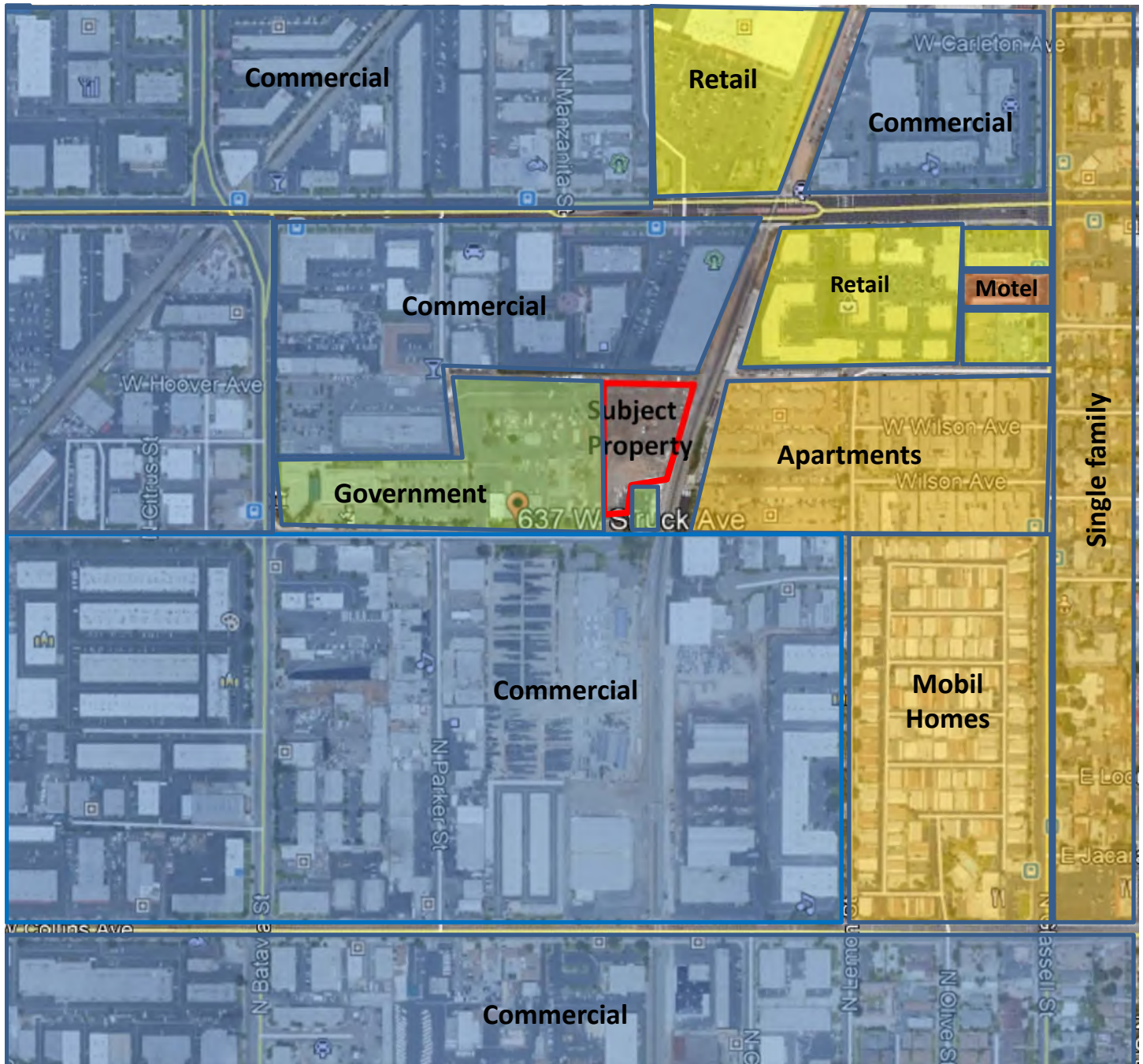
2km



**Attachment 11. Site Map with Surrounding Land Uses Labeled**

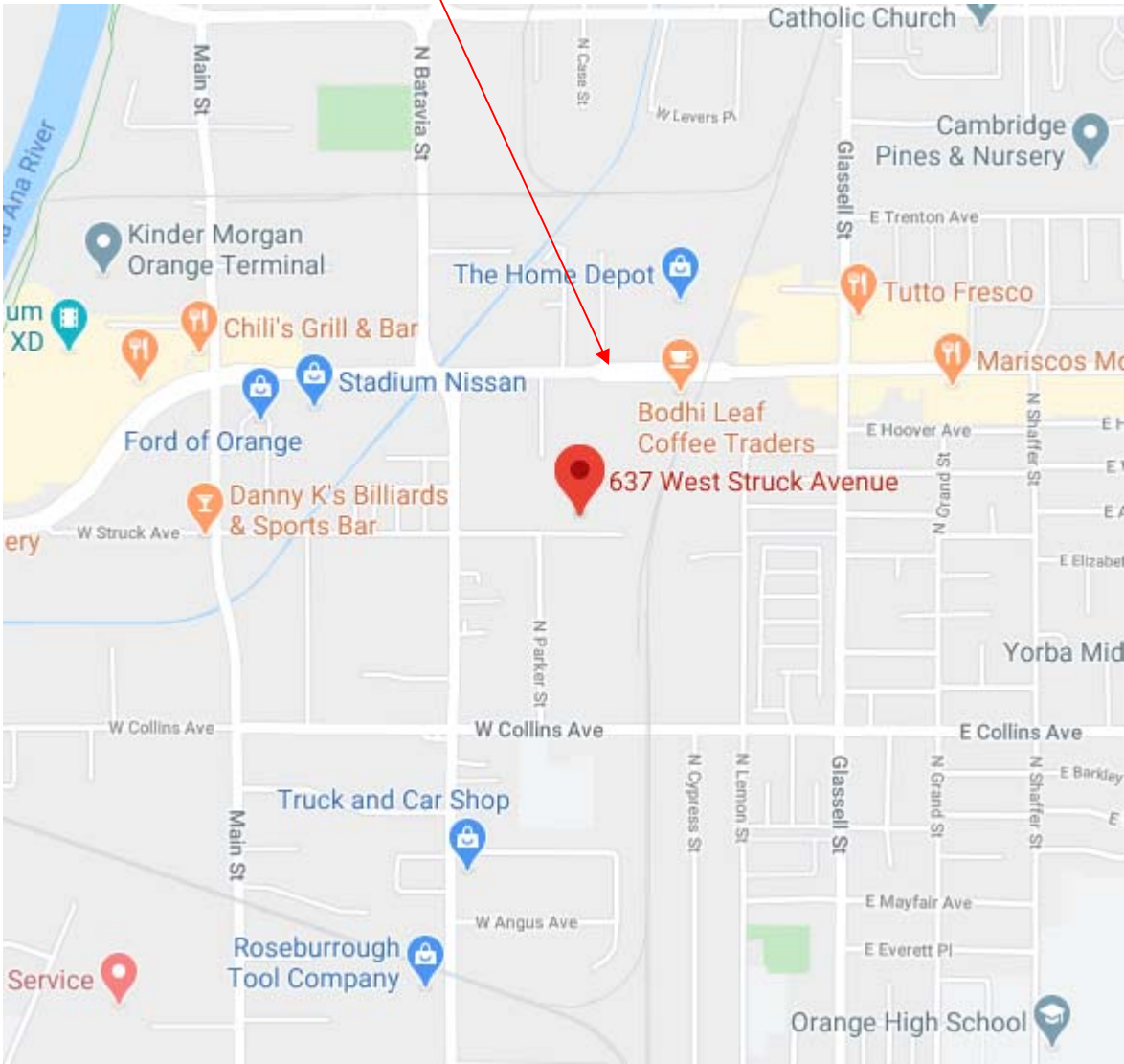
## Orange Public Works Yard: Surrounding Land Uses and Community

---



Orange Public Works Yard: Site Amenities

Bus Stop



## **Attachment 12. SHPO Letter**



**DEPARTMENT OF PARKS AND RECREATION  
OFFICE OF HISTORIC PRESERVATION**

Armando Quintero, Director

Julianne Polanco, State Historic Preservation Officer

1725 23rd Street, Suite 100, Sacramento, CA 95816-7100

Telephone: (916) 445-7000

FAX: (916) 445-7053

calshpo.ohp@parks.ca.gov

[www.ohp.parks.ca.gov](http://www.ohp.parks.ca.gov)

September 28, 2020

[VIA EMAIL]

Refer to HUD\_2020\_0914\_002

Ms. Liza Santos  
Housing Development Compliance Administrator  
Housing & Community Development  
County of Orange  
1501 St. Andrews Place, First Floor  
Santa Ana, CA 92705

Re: Orange Corporate Yard Housing Multifamily Affordable Housing Development Project at 637 West Struck, Orange, CA

Dear Ms. Santos:

The California State Historic Preservation Officer received the consultation submittal for the above referenced undertaking for our review and comment pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations found at 36 CFR Part 800. The regulations and advisory materials are located at [www.achp.gov](http://www.achp.gov).

Pursuant to 36 CFR §800.4(d) we do not object to the County of Orange's finding that no historic properties will be affected by the proposed Orange Corporate Yard multifamily affordable housing development project located at 637 West Struck in Orange, CA. However, the County may have additional Section 106 responsibilities under certain circumstances set forth at 36 CFR Part 800. For example, in the event that historic properties are discovered during implementation of the undertaking, your agency is required to consult further pursuant to §800.13(b).

We appreciate the County of Orange's consideration of historic properties in the project planning process. If you have questions please contact Shannon Lauchner Pries, Historian II, with the Local Government & Environmental Compliance Unit at (916)445-7013 or by email at [shannon.pries@parks.ca.gov](mailto:shannon.pries@parks.ca.gov).

Note that we are only sending this letter in electronic format. Please confirm receipt of this letter. If you would like a hard copy mailed to you, respond to this email to request a hard copy be mailed.

Sincerely,

A handwritten signature in blue ink, appearing to be 'J Polanco', with a long horizontal line extending to the right.

Julianne Polanco  
State Historic Preservation Officer

## **Attachment 13. OCY Noise Study**



---

# **Orange Corporate Yard Affordable Housing**

## **NOISE IMPACT ANALYSIS**

### **CITY ORANGE**

PREPARED BY:

Bill Lawson, PE, INCE  
blawson@urbanxroads.com  
(949) 336-5979

MARCH 27, 2020





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## **LIST OF ABBREVIATED TERMS**

(1)	Reference
ANSI	American National Standards Institute
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
IEOC	Inland Empire-Orange County Line
INCE	Institute of Noise Control Engineering
$L_{eq}$	Equivalent continuous (average) sound level
$L_{max}$	Maximum level measured over the time interval
$L_{min}$	Minimum level measured over the time interval
mph	Miles per hour
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PPV	Peak Particle Velocity
Project	Orange Corporate Yard Affordable Housing
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

## EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise attenuation measures for the proposed Orange Corporate Yard Affordable Housing development (“Project”). The Project site is located north of Struck Avenue and east of Batavia Street adjacent to the Metrolink Inland Empire-Orange County (IEOC) rail lines in the City of Orange. It is our understanding that the Project is to consist of up to 62 multi-family affordable housing residential dwelling units. This study has been prepared consistent with applicable City of Orange noise standards and significance criteria, consistent with guidance provided in Appendix G of the California Environmental Quality Act (CEQA). (1)

### ON-SITE RAIL NOISE ANALYSIS

Using the Federal Transit Administration (FTA) rail noise prediction model and the parameters outlined in this noise study, the worst-case future exterior rail noise levels at the Project building façades are estimated at 64.8 CNEL. With no clearly defined outdoor living areas shown on the site plan, the Project is not subject to the City of Orange 65 dBA CNEL exterior noise level standards. Instead, the City of Orange has established maximum interior noise levels for new residential development, requiring sufficient insulation be provided to reduce interior ambient noise levels to 45 dBA CNEL. To provide the necessary interior noise reduction and to satisfy the City of Orange 45 dBA CNEL interior noise standards the Project shall provide the following interior noise mitigation measures:

- Windows & Glass Doors: All windows and glass doors shall be well fitted, well weather-stripped assemblies and shall have a minimum sound transmission class (STC) rating of 27.
- Exterior Doors (Non-Glass): All exterior doors shall be well weather-stripped and have minimum STC ratings of 27. Well-sealed perimeter gaps around the doors are essential to achieve the optimal STC rating. (2)
- Walls: At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal.
- Roof: Roof sheathing of wood construction shall be per manufacturer’s specification or caulked plywood of at least one-half inch thick. Ceilings shall be per manufacturer’s specification or well-sealed gypsum board of at least one-half inch thick. Insulation with at least a rating of R-19 shall be used in the attic space.
- Ventilation: Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g. air conditioning) or active ventilation system (e.g. fresh air supply) shall be provided which satisfies the requirements of the Uniform Building Code.

With the interior Project Design Features provided by the Project, interior noise levels in residential units are expected to meet the City of Orange 45 dBA CNEL interior noise level standards for residential development.

## ON-SITE RAIL VIBRATION ANALYSIS

Based on the FTA vibration analysis methodology, the vibration levels at the closest residential units to the adjacent railroad lines are estimated to approach 67 VdB. Therefore, on-site rail-related vibration levels are shown to remain below the FTA vibration threshold of 72 VdB for frequent events at residential land uses. (3) Ground-borne noise levels generated by on-site rail vibration levels will still be audible in exterior areas, and may be audible within quiet rooms. (3)

## OPERATIONAL NOISE LEVELS

The Orange Corporate Yard Affordable Housing mixed-use development is not expected to include any specific type of operational noise levels beyond the typical noise sources associated with residential land use in the Project study area, such as people and children, car doors slamming, garage doors, trash collection, and outdoor common areas, and is considered a noise-sensitive receiving land use. In addition, the project study area does not include any nearby noise sensitive receiver locations that may be impacted from the Project related operational noise levels. Therefore, the potential operational noise impacts associated with the mixed-use Project are considered *less than significant*.

## CONSTRUCTION NOISE ANALYSIS

Using sample reference noise levels to represent the planned construction activities of the Orange Corporate Yard Affordable Housing site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. The Project-related short-term construction noise levels are expected to range from 55.0 to 73.6 dBA  $L_{eq}$  and will satisfy the acceptable 85 dBA  $L_{eq}$  threshold at all receiver locations. Therefore, based on the results of this analysis, all nearby sensitive receiver locations will experience *less than significant* impacts due to Project construction noise levels.

## CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Based on this analysis it is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. At distances ranging from 38 feet (at location R4) to 124 feet (at location R2) from Project construction activities (at the Project site boundary), construction vibration levels are estimated to range from 66.1 to 81.5 VdB and will remain below the FTA Transit Noise and Vibration Impact Assessment maximum acceptable vibration criteria by use at all receiver locations. Therefore, the Project-related vibration impacts are considered *less than significant* during the construction activities at the Project site.



# **1 INTRODUCTION**

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Orange Corporate Yard Affordable Housing (“Project”). This noise study describes the proposed Project, provides information regarding noise fundamentals, outlines the local regulatory setting, provides the study methods and procedures for rail noise and vibration analysis. In addition, this study includes an analysis of the potential Project-related short-term construction noise and vibration impacts.

## **1.1 SITE LOCATION**

The proposed Orange Corporate Yard Affordable Housing site is located north of Struck Avenue and east of Batavia Street in the City of Orange, as shown on Exhibit 1-A. The Project site is located adjacent to the Metrolink Inland Empire-Orange County Line. Existing uses that surround the Project site include commercial retail centers to the north, the Department of Public Works to the west, and a nursery to the south. The City of Orange General Plan designates the Project site for General Commercial (GC) uses. The GC designation allows for a wide range of retail and service commercial uses and professional offices. Regional shopping centers, mid-rise office projects, corridor shopping districts, and neighborhood corner stores are permitted uses (4).

## **1.2 PROJECT DESCRIPTION**

The proposed Project is anticipated to include the development of up to 62 multi-family affordable housing residential dwelling units (DU) as shown on Exhibit 1-B. As the land uses proposed by the Project are not consistent with the General Plan land use designation, the Project would require a Development Code Amendment from GC to Medium Density Residential (MDR) (i.e., Zone Change).

## EXHIBIT 1-A: LOCATION MAP



**EXHIBIT 1-B: SITE PLAN**



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## 2 Fundamentals

Noise is simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

**EXHIBIT 2-A: TYPICAL NOISE LEVELS**

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	SPEECH INTERFERENCE
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	SLEEP DISTURBANCE
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

Source: Environmental Protection Agency Office of Noise Abatement and Control, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* (EPA/ONAC 550/9-74-004) March 1974.

### 2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (5) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 100 feet, which can cause serious discomfort. (6) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

## 2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most commonly used figure is the equivalent level ( $L_{eq}$ ). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level ( $L_{eq}$ ) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period (typically one hour) and is commonly used to describe the “average” noise levels within the environment.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of 5 decibels to dBA  $L_{eq}$  sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA  $L_{eq}$  sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Orange relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

## 2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The way noise reduces with distance depends on the following factors.

### 2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (5)

### 2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually

sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (7)

### **2.3.3 ATMOSPHERIC EFFECTS**

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (5)

### **2.3.4 SHIELDING**

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an “out of sight, out of mind” effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby residents. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The FHWA does not consider the planting of vegetation to be a noise abatement measure. (7)

## **2.4 NOISE CONTROL**

Noise control is the process of obtaining an acceptable noise environment for an observation point or receiver by controlling the noise source, transmission path, receiver, or all three. This concept is known as the source-path-receiver concept. In general, noise control measures can be applied to these three elements.

## **2.5 NOISE BARRIER ATTENUATION**

Effective noise barriers can reduce noise levels by up to 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (7)



## 2.6 LAND USE COMPATIBILITY WITH NOISE

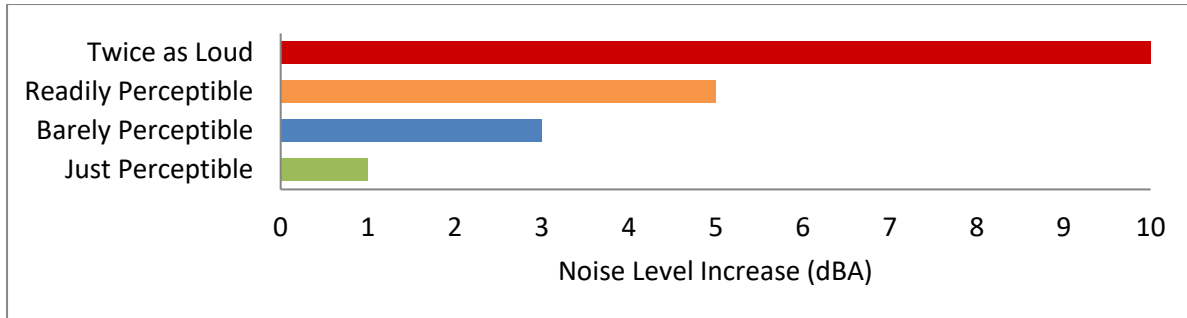
Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (8)

## 2.7 COMMUNITY RESPONSE TO NOISE

Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon everyone's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

- Fear associated with noise producing activities;
- Socio-economic status and educational level;
- Perception that those affected are being unfairly treated;
- Attitudes regarding the usefulness of the noise-producing activity;
- Belief that the noise source can be controlled.

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (9) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (9) Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (7)

**EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION**

## 2.8 EXPOSURE TO HIGH NOISE LEVELS

The Occupational Safety and Health Administration (OSHA) sets legal limits on noise exposure in the workplace. The permissible exposure limit (PEL) for a worker over an eight-hour day is 90 dBA. The OSHA standard uses a 5 dBA exchange rate. This means that when the noise level is increased by 5 dBA, the amount of time a person can be exposed to a certain noise level to receive the same dose is cut in half. The National Institute for Occupational Safety and Health (NIOSH) has recommended that all worker exposures to noise should be controlled below a level equivalent to 85 dBA for eight hours to minimize occupational noise induced hearing loss. NIOSH also recommends a 3 dBA exchange rate so that every increase by 3 dBA doubles the amount of the noise and halves the recommended amount of exposure time. (10)

OSHA has implemented requirements to protect all workers in general industry (e.g. the manufacturing and the service sectors) for employers to implement a Hearing Conservation Program where workers are exposed to a time weighted average noise level of 85 dBA or higher over an eight-hour work shift. Hearing Conservation Programs require employers to measure noise levels, provide free annual hearing exams and free hearing protection, provide training, and conduct evaluations of the adequacy of the hearing protectors in use unless changes to tools, equipment and schedules are made so that they are less noisy and worker exposure to noise is less than the 85 dBA. This noise study does not evaluate the noise exposure of workers within a project or construction site based on CEQA requirements, and instead, evaluates Project-related operational and construction noise levels at the nearby sensitive receiver locations in the Project study area.

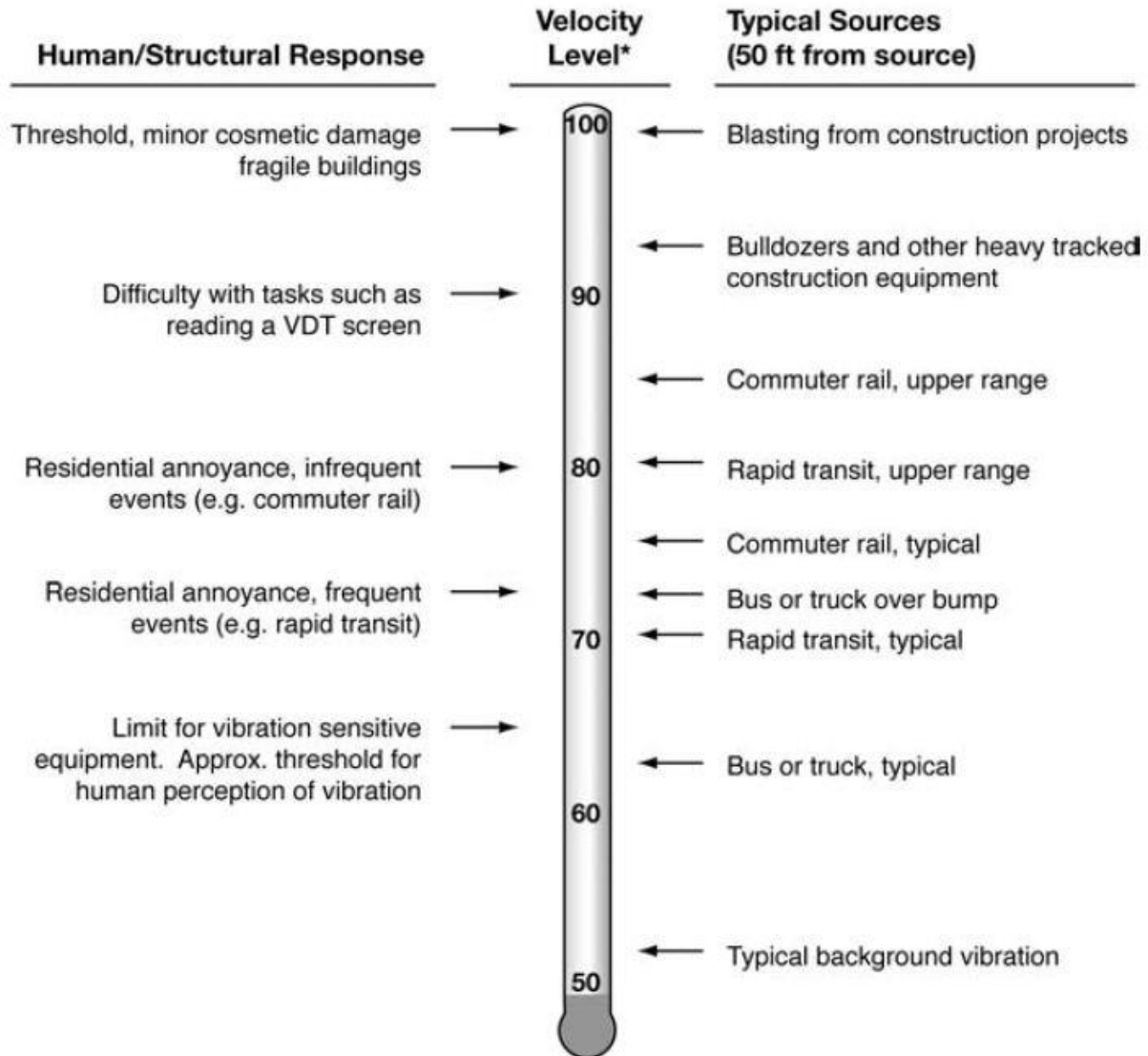
## 2.9 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment* (3), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS. Decibel notation (VdB) serves to reduce the range of numbers used to describe human response to vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receivers for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment and/or activities

The background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.

**EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION**



\* RMS Vibration Velocity Level in VdB relative to  $10^{-6}$  inches/second

Source: Federal Transit Administration (FTA) Transit Noise Impact and Vibration Assessment.

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### 3 REGULATORY SETTING

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

#### 3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (12) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

#### 3.2 STATE OF CALIFORNIA BUILDING CODE

The State of California's noise insulation standards are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 2, and the California Building Code. These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are developed near major transportation noise sources, and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. Acoustical studies that accompany building plans for noise-sensitive land uses must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

#### 3.3 CITY ORANGE GENERAL PLAN NOISE ELEMENT

The City Orange has adopted a Noise Element of the General Plan to control and abate environmental noise, and to protect the citizens of the City Orange from excessive exposure to noise. (13) The Noise Element specifies the maximum allowable exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports and railroads. In addition, the Noise Element identifies several policies to minimize the impacts of excessive noise levels throughout the community and establishes noise level requirements for

all land uses. To protect City Orange residents from excessive noise, the Noise Element contains the following policies related to the Project:

- Policy 1.3: Incorporate design features into residential and mixed-use projects that can be used to shield residents from excessive noise.*
- Policy 1.4: Ensure that acceptable noise level are maintained near noise-sensitive uses.*
- Policy 3.1: Encourage noise-compatible land uses and incorporate noise-reducing design features within transit oriented, mixed-use development near rail corridors.*
- Policy 7.2: Require developers and contractors to employ noise minimizing techniques during construction and maintenance operations.*
- Policy 7.3: Limit the hours of construction and maintenance operations located adjacent to noise-sensitive land uses.*

### **3.3.1 LAND USE COMPATIBILITY**

To ensure noise-sensitive land uses are protected from high levels of noise the City Orange has developed its own land use compatibility standards, based on recommended parameters from the Governor's Office of Planning and Research (OPR) (14).

The City's Land Use Compatibility standards use the CNEL noise descriptor, are intended to be applicable for land use designations exposed to noise levels generated by transportation related sources. Land use compatibility noise exposure limits are generally established as 65 dBA CNEL for a majority of land use designations throughout the City. Higher exterior noise levels are permitted for multiple-family housing and housing in mixed-use contexts than for single-family houses. This is because multiple-family complexes are generally located in transitional areas between single-family and commercial districts or in proximity to major arterials served by transit, and a more integrated mix of residential and commercial activity (accompanied by higher noise levels) is often desired in mixed-use areas close to transit routes. These standards establish maximum interior noise levels for new residential development, requiring that sufficient insulation be provided to reduce interior ambient noise levels to 45 dBA CNEL.

### **3.3.2 STATIONARY NOISE STANDARDS**

The City Orange has set stationary-source hourly average Leq exterior limits to control operational stationary source noise levels associated with the development of the proposed Orange Corporate Yard Affordable Housing. These hourly and maximum performance standards (expressed in Leq) for non-transportation or stationary noise sources are designed to protect noise sensitive land uses adjacent to stationary sources from excessive noise. According to Table N-4 of the City Orange General Plan Noise Element, acceptable exterior noise levels at the sensitive receptor is 55 dBA Leq during daytime (7:00 a.m. to 10:00 p.m.) hours and 45 dBA Leq during the nighttime (10:00 p.m. to 7:00 a.m.) hours.

## **3.4 CITY ORANGE MUNICIPAL CODE STANDARDS**

To analyze noise impacts originating from a designated fixed location or private property such as the Orange Corporate Yard Affordable Housing Project, stationary-source (operational) noise



levels and noise from construction activities are typically evaluated against standards established under the City's Municipal Code.

### 3.4.1 OPERATIONAL NOISE STANDARDS

For noise-sensitive residential property, the City Orange Municipal Code, Section 8.24.040, identifies exterior noise levels standards of 55 dBA  $L_{eq}$  for the daytime hours (7:00 a.m. to 10:00 p.m.) and 50 dBA  $L_{eq}$  during the nighttime (10:00 p.m. to 7:00 a.m.) hours. The City Orange Municipal Code Noise Standards are included in Appendix 3.1. The daytime Municipal Code requirements are consistent with the noise levels identified in the City Orange General Plan Noise Element, however, the 50 dBA  $L_{eq}$  nighttime noise levels are 5 dBA higher than the 45 dBA  $L_{eq}$  thresholds identified in the Noise Element. For the purpose of this analysis relies on the more restrictive 45 dBA  $L_{eq}$  nighttime noise level standards identified in the Noise Element.

Per Section 8.24.040(B) For multi-family residential or mixed use developments located within the City's Urban Mixed Use, Neighborhood Mixed Use, Old Towne Mixed Use or Medium Density Residential General Plan land use districts, exterior noise standards shall apply to common recreation areas only and shall not apply to private exterior space (such as a private yard, patio, or balcony).

### 3.4.2 CONSTRUCTION NOISE STANDARDS

The City Orange has set restrictions to control noise impacts associated with the construction of the proposed Project. Section 8.24.50(E) of the City's Municipal Code states: *Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities take place between the hours of 7:00 a.m. and 8:00 p.m. on any day except for Sunday or a Federal holiday, or between the hours of 9:00 a.m. and 8:00 p.m. on Sunday or a Federal holiday.* Neither the City's General Plan nor Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or periodic noise increase*.

To evaluate whether the Project will generate potentially significant construction noise levels at off-site sensitive receiver locations, a construction-related noise level threshold is adopted from the *Criteria for Recommended Standard: Occupational Noise Exposure* prepared by the National Institute for Occupational Safety and Health (NIOSH). (15) A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The construction related noise level threshold starts at 85 dBA for more than eight hours per day, and for every 3-dBA increase, the exposure time is cut in half. This results in noise level thresholds of 88 dBA for more than four hours per day, 92 dBA for more than one hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. (15) For the purposes of this analysis, the lowest, more conservative construction noise level threshold of 85 dBA  $L_{eq}$  is used as an acceptable threshold for construction noise at the nearby sensitive receiver locations. Since this construction-related noise level threshold represents the energy average of the noise source over a given time, they are expressed as  $L_{eq}$  noise levels. Therefore, the noise level threshold of 85 dBA  $L_{eq}$  over a period

of eight hours or more is used to evaluate the potential Project-related construction noise level impacts at the nearby sensitive receiver locations.

The NIOSH 85 dBA  $L_{eq}$  construction noise level threshold used in the Noise Study is consistent with similar construction noise level thresholds identified by the Federal Transit Administration (FTA) that are specific to noise-sensitive residential uses. The FTA Transit Noise and Vibration Impact Assessment identifies a daytime construction noise level threshold of 90 dBA  $L_{eq}$  for general assessment. (3) As such, the NIOSH 85 dBA  $L_{eq}$  threshold used in the Noise Study to identify potential impacts is more conservative than the FTA threshold which is specific to construction noise at residential receiver locations.

### **3.5 CONSTRUCTION VIBRATION STANDARDS**

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. (3) Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration. (3) Occasionally large bulldozers and loaded trucks can cause perceptible vibration levels at close proximity.

To analyze vibration impacts originating from the operation and construction of the Orange Corporate Yard Affordable Housing, vibration-generating activities are appropriately evaluated against standards established under a City's Municipal Code, if such standards exist. However, the City of Orange does not identify specific vibration level limits and instead relies on the Federal Transit Administration (FTA) methodology (3). The FTA *Transit Noise and Vibration Impact Assessment* methodology provides guidelines for the maximum-acceptable vibration criteria for different types of land uses. These guidelines allow 90 VdB for industrial (workshop) use, 84 VdB for office use and 78 VdB for daytime residential uses and 72 VdB for nighttime uses in buildings where people normally sleep. (16 p. 8\_8)

## 4 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

- A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- B. Generation of excessive ground-borne vibration or ground-borne noise levels?
- C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

While the City Orange General Plan Guidelines provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts, they do not define the levels at which increases are considered substantial for use under Guideline A. CEQA Appendix G Guideline C applies to nearby public and private airports, if any, and the Project's land use compatibility.

### 4.1 CEQA GUIDELINES NOT FURTHER ANALYZED

The Project site is not located within two miles of a public airport or within an airport land use plan; nor is the Project within the vicinity of a private airstrip. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant*, and no further noise analysis is conducted in relation to Guideline C.

### 4.2 INCREMENTAL NOISE LEVEL INCREASES

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. (17)

There is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction, primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an effective way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged.

To describe the amount to which a given noise level increase is considered acceptable, the CCity Orange General Plan has adopted criteria for determining appropriate mitigation under the California Environmental Quality Act (CEQA). In addition to the maximum allowable noise level standards outlined in Section 3.4.1, an increase in ambient noise levels is assumed to be a significant noise impact if a project causes ambient noise levels to exceed the following:

- Where the existing ambient noise level is less than 65 dBA, a project related permanent increase in ambient noise levels of 5 dBA CNEL or greater.
- Where the existing ambient noise level is greater than 65 dBA, a project related permanent increase in ambient noise levels of 3 dBA CNEL or greater.

### 4.3 SIGNIFICANCE CRITERIA

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-1 shows the significance criteria summary matrix.

#### ON-SITE RAIL NOISE

- If the on-site interior noise levels exceed 45 dBA CNEL at the residential uses located within the Project site (City Orange General Plan Noise Element, Table N-3).

#### ON-SITE RAIL VIBRATION

- If the on-site vibration levels exceed 78 VdB for daytime residential uses and 72 VdB for nighttime uses in buildings where people normally sleep. (FTA, Transit Noise and Vibration Impact Assessment) (16 p. 8\_8).

#### CONSTRUCTION NOISE

- If Project-related construction activities take place outside the hours between 7:00 a.m. and 8:00 p.m. on any day except for Sunday or a Federal holiday, or between the hours of 9:00 a.m. and 8:00 p.m. on Sunday or a Federal holiday (City Orange Municipal Code Section 8.24.50(E)).
- If Project-related construction activities create noise levels which exceed the 85 dBA  $L_{eq}$  acceptable noise level threshold at the nearby sensitive receiver locations (NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure).

#### CONSTRUCTION VIBRATION

- If Project generated operational vibration levels exceed the FTA's acceptable vibration thresholds of 78 VdB for daytime residential use and buildings where people normally sleep. (FTA Transit Noise and Vibration Impact Assessment). (16 p. 8\_8)

**TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY**

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
On-Site Rail	Residential	Noise Level Threshold <sup>1</sup>	45 dBA CNEL	
		Vibration Level Threshold <sup>2</sup>	78 VdB	72 VdB
Construction	Residential	Permitted between 7:00 a.m. and 8:00 p.m. on any day except for Sunday or a Federal holiday <sup>3</sup>		
		Noise Level Threshold <sup>4</sup>	85 dBA L <sub>eq</sub>	n/a
		Vibration Level Threshold <sup>2</sup>	78 VdB	n/a

<sup>1</sup> City Orange General Plan Noise Element, Table N-3.

<sup>2</sup> FTA, Transit Noise and Vibration Impact Assessment.

<sup>3</sup> City Orange Municipal Code Section 8.24.50(E).

<sup>4</sup> NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure.

"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

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## 5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at four locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, February 26<sup>th</sup>, 2020. Appendix 5.1 includes study area photos.

### 5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (18)

### 5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources.* (5) Further, FTA guidance states, *that it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community.* (3)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (3) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels



and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

### 5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels ( $L_{eq}$ ). The equivalent sound level ( $L_{eq}$ ) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions.

**TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS**

Location <sup>1</sup>	Description	Energy Average Noise Level (dBA $L_{eq}$ ) <sup>2</sup>		CNEL
		Daytime	Nighttime	
L1	Located east of the Project site on West Hoover Avenue near existing multi-family residential homes.	55.7	52.4	59.8
L2	Located southeast of the Project site north of West Brenna Lane near Citrus Grove Apartments.	52.8	55.0	61.3
L3	Located West of the Project site on Struck Avenue near the Department of public works.	59.3	59.6	66.1
L4	Located north of the Project site in the parking lot of the Metro Court Plaza.	56.6	55.4	62.2

<sup>1</sup> See Exhibit 5-A for the noise level measurement locations.

<sup>2</sup> Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2.

"Day" = 7:00 a.m. to 10:00 p.m.; "Night" = 10:00 p.m. to 7:00 a.m.

These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum,  $L_1$ ,  $L_2$ ,  $L_5$ ,  $L_8$ ,  $L_{25}$ ,  $L_{50}$ ,  $L_{90}$ ,  $L_{95}$ , and  $L_{99}$  percentile noise levels observed during the daytime and nighttime periods. The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with Highland Springs Avenue and E 8<sup>th</sup> Street.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



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## 6 METHODS AND PROCEDURES

The following section outlines the methods and procedures used to model and analyze the future noise environment.

### 6.1 ON-SITE RAIL NOISE PREDICTION MODEL

The estimated railroad noise impacts from the adjacent Metrolink Inland Empire-Orange County (IEOC) rail lines east of the Project site are calculated using the Federal Transit Administration (FTA) General Transit Noise Assessment Model. The IEOC Line is a commuter rail line run by Metrolink in Southern California. It runs from San Bernardino through Orange County to Oceanside in northern San Diego County. The FTA Model calculates the predicted noise level based on the type of train, distance to receiver, number of trains per hour, speed, number of cars per train, and type of railroad tracks. The existing rail volumes on the IEOC east of the Project are shown on Table 6-1.

**TABLE 6-1: ON-SITE RAILROAD PARAMETERS**

Rail Activity	Speed (mph) <sup>3</sup>	Trains Per Day		
		Daytime	Nighttime	Total
Existing <sup>1</sup>	39	14	2	16
Future <sup>2</sup>	39	28	4	32

<sup>1</sup> U.S. Department of Transportation Crossing Inventory Form No. 027015T and the March 26th, 2020 Metro Inland Empire-Orange County Schedule.

<sup>2</sup> Based on a conservative doubling of the existing rail volume.

<sup>3</sup> Metrolink Fact Sheet Q3 '18-19 Average Speed.

"Day" = 7:00 a.m. to 10:00 p.m.; "Night" = 10:00 p.m. to 7:00 a.m.

The average train speeds were obtained from the Southern California Regional Rail Authority *Metrolink Fact Sheet* for Quarter 3 of '18-19. In addition, the existing train volumes were obtained from the current schedules for the IEOC line, and the Department of Transportation Crossing Inventory Form at Katella Avenue (Crossing Number 027015T). (19) The *Metrolink Fact Sheet* and Crossing inventory Form are included in Appendix 6.1. For existing conditions, the IEOC rail line serves 16 trains per day. The future noise conditions at the residential land use within the Project site are based on the estimated future rail volumes. To estimate the worst-case future noise conditions due to rail activity, the existing train volumes were doubled to serve 32 trains per day.

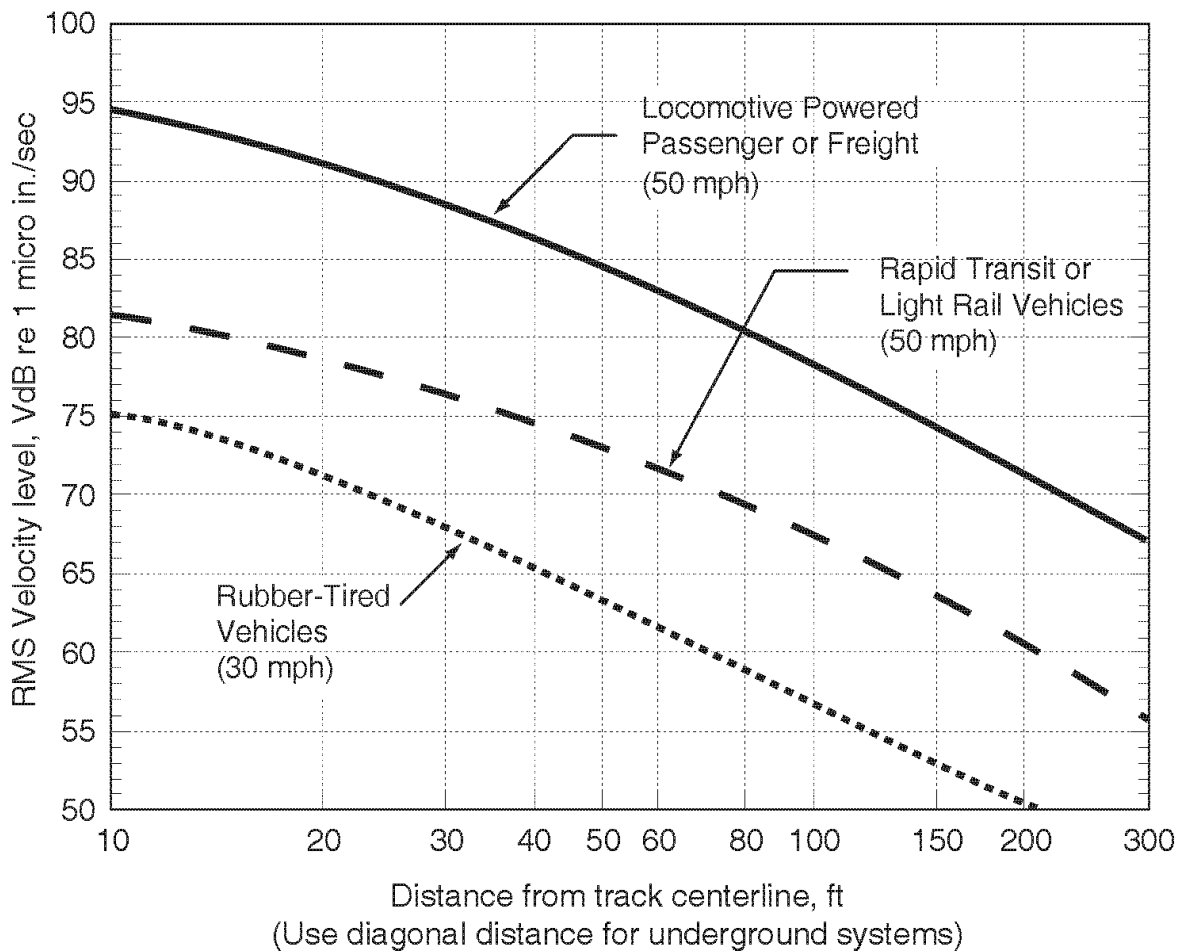
### 6.2 ON-SITE RAIL VIBRATION ASSESSMENT

This section focuses on the potential ground-borne vibration associated with rail transportation activities. The estimated railroad vibration impacts from freight trains traveling on the railroad tracks near the Project site are calculated using the FTA *Transit Noise and Vibration Impact Assessment* General Vibration Assessment methodology. The FTA General Vibration Assessment calculates the predicted vibration level based on generalized ground surface vibration curves

which were developed using actual measurements of representative North American transit systems. (3) Figure 6-4 of the FTA *Transit Noise and Vibration Impact Assessment* shows the generalized ground surface vibration curves for three types of transit sources, as shown on Exhibit 6-A of this report. The generalized reference curves are used to identify the appropriate reference vibration level, before any adjustments, for the Project based on the type of train, speed, and distance to receiver locations. The FTA reference curves are provided in VdB to describe the human response to vibration levels.

Based on the reference curve for a rapid transit train traveling at 50 mph, as shown on Exhibit 6-A, the reference vibration level at 50 feet is estimated to be 72 VdB. As previously shown on Table 6-1, the Metrolink trains passing the Project site are expected to travel at a lower speed of 40 mph, and therefore, the reference level will be adjusted to reflect the change from 50 to 40 mph, as well as to reflect the distance to the Project building. In addition, the FTA provides vibration source and propagation adjustments to the reference vibration curve levels based on the characteristics of the trains and rail lines in the study area.

**EXHIBIT 6-A: FTA REFERENCE GROUND SURFACE VIBRATION CURVES**



Source: FTA *Transit Noise and Vibration Impact Assessment*, Figure 6-4.

### 6.3 CONSTRUCTION VIBRATION ASSESSMENT

This analysis focuses on the potential ground-borne vibration associated with construction activities. Ground-borne vibration levels from automobile traffic are generally overshadowed by vibration generated by heavy trucks that roll over the same uneven roadway surfaces. However, due to the rapid drop-off rate of ground-borne vibration and the short duration of the associated events, vehicular traffic-induced ground-borne vibration is rarely perceptible beyond the roadway right-of-way, and rarely results in vibration levels that cause damage to buildings in the vicinity. However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used.

Ground vibration levels associated with various types of construction equipment are summarized on Table 6-2. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential Project construction vibration levels using the following vibration assessment methods defined by the FTA. To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation:

$$L_{VdB}(D) = L_{VdB}(25 \text{ ft}) - 30\log(D/25)$$

**TABLE 6-2: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT**

Equipment	Vibration Decibels (VdB) at 25 feet
Small bulldozer	58
Jackhammer	79
Loaded Trucks	86
Large bulldozer	87

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## 7 ON-SITE RAIL ANALYSIS

An on-site analysis has been completed to determine the rail noise and vibration levels and to identify potential necessary attenuation measures for the proposed Orange Corporate Yard Affordable Housing Project. It is expected that the primary source of these potential impacts to the Project site will be rail activity from the existing and future IEOC Line.

### 7.1 ON-SITE EXTERIOR NOISE ANALYSIS

A review of the Project site plan suggests that the areas subject to the City Orange exterior noise level standards will be limited to the outdoor common areas. This is consistent with the City Orange General Plan Noise Element indicating that *higher exterior noise levels are permitted for multiple-family housing and housing in mixed-use contexts than for single-family houses*. In addition, the City Orange Municipal Code Section 8.24.040(B) indicates that for multi-family residential exterior noise standards shall apply to common recreation areas only and shall not apply to private exterior space (such as a private yard, patio, or balcony). With no clearly defined outdoor living areas shown on the site plan, the Project is not subject to the City Orange 65 dBA CNEL exterior noise level standards. Instead, the City Orange has established maximum interior noise levels for new residential development, requiring sufficient insulation be provided to reduce interior ambient noise levels to 45 dBA CNEL.

### 7.1 ON-SITE INTERIOR NOISE ANALYSIS

To ensure that the interior noise levels comply with the City Orange 45 dBA CNEL interior noise standards, future noise levels were calculated at the building facades. A review of the Project site plan indicates that the multi-family residential building façade is located roughly 63 feet from IEOC rail line. Using the Federal Transit Administration (FTA) rail noise prediction model and the parameters outlined in this noise study, the worst-case future exterior rail noise levels at the Project building façades are estimated at 64.8 dBA CNEL. Appendix 7.1 includes the future exterior rail noise calculations.

#### 7.1.1 NOISE REDUCTION METHODOLOGY

The interior noise level is the difference between the predicted exterior noise level at the building façade and the noise reduction of the structure. Typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed." (7) (20) However, sound leaks, cracks and openings within the window assembly can greatly diminish its effectiveness in reducing noise. Several methods are used to improve interior noise reduction, including: [1] weather-stripped solid core exterior doors; [2] upgraded dual glazed windows; [3] mechanical ventilation/air conditioning; and [4] exterior wall/roof assemblies free of cut outs or openings.

#### 7.1.2 INTERIOR NOISE LEVEL ASSESSMENT

To provide the necessary interior noise reduction, Table 7-2 indicates that residential units adjacent to the railroad lines will require a windows closed condition and a means of mechanical

ventilation (e.g. air conditioning). Table 7-1 shows that the future interior noise levels are expected to range from 40.8 to 49.9 dBA CNEL. The interior noise level analysis on Table 7-1 shows that the City Orange 45 dBA CNEL interior noise level standards can be satisfied using typical building construction and standard windows with a minimum STC rating of 27. The interior noise analysis shows that the Project will satisfy the City Orange 45 dBA CNEL interior noise level standards for residential development.

**TABLE 7-1: INTERIOR NOISE LEVELS (CNEL)**

Location	Noise Level at Façade <sup>1</sup>	Required Interior NR <sup>2</sup>	Minimum Interior NR <sup>3</sup>	Upgraded Windows <sup>4</sup>	Interior Noise Level <sup>5</sup>	Noise Standard (dBA CNEL) <sup>6</sup>	Standard Exceeded?
Building Façade	64.8	19.8	25	No	39.8	45	No

<sup>1</sup> Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).

<sup>2</sup> Noise reduction required to satisfy the interior noise standards.

<sup>3</sup> Minimum interior noise reduction with standard building construction.

<sup>4</sup> Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?

<sup>5</sup> Estimated interior noise level with minimum STC rating for all windows.

<sup>6</sup> Interior noise level standards as described in Section 3.1.

"NR" = Noise Reduction

## 8 RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following receiver locations, as shown on Exhibit 8-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. The City Orange General Plan Noise Element defines noise-sensitive uses as residences, hospitals, convalescent and day care facilities, schools, and libraries. (13) Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

Consistent with *the Orange Corporate Yard Affordable Housing Air Quality Impact Analysis* (21), four receiver locations in the vicinity of the Project site were identified. All distances are measured from the Project site boundary to the outdoor living areas (e.g., private backyards) or at the building façade, whichever is closer to the Project site. The selection of receiver locations is based on FHWA guidelines and is consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2.

Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the project boundary to each receiver location.

- R1: Located approximately 90 feet east of the Project site, R1 represents the Lemon Grove Apartment complex at 1148 North Lemon Street.
- R2: Located approximately 124 feet east of the Project site, R2 represents the Citrus Grove Apartment complex at 1120 North Lemon Street.
- R3: Location R3 represents the City Orange Department of Public Works facility located 173 feet west of the Project site at 637 West Struck Avenue.
- R4: Location R4 represents the Factory Motor Parts facility located at 448 West Katella Avenue at approximately 38 feet from the Project site.

## EXHIBIT 8-A: RECEIVER LOCATIONS



## 9 CONSTRUCTION IMPACTS

This section analyzes potential average dBA  $L_{eq}$  impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 9-A shows the construction noise source locations in relation to the nearby sensitive receiver locations previously described in Section 8.

### 9.1 CONSTRUCTION NOISE LEVELS

Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators that when combined can reach high levels. The number and mix of construction equipment is expected to occur in the following stages, based on the *Orange Corporate Yard Affordable Housing Air Quality Impact Analysis* for the Project: (21)

- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels.

Hard site conditions are used in the construction noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6.0 dBA for each doubling of distance from a point source, based on existing conditions in the Project study area. A default ground attenuation factor of 1.0 was used in the CadnaA noise prediction model to account for hard site conditions.

### 9.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe the Project construction noise levels, measurements were collected for similar activities at several construction sites. Table 9-1 provides a summary of the construction reference noise level measurements. Since the reference noise levels were collected at varying distances of 30 feet and 50 feet, all construction noise level measurements presented on Table 9-1 have been adjusted for consistency to describe a uniform reference distance of 50 feet.



### EXHIBIT 9-A: CONSTRUCTION NOISE SOURCE LOCATIONS



**TABLE 9-1: CONSTRUCTION REFERENCE NOISE LEVELS**

Construction Stage	Reference Construction Activity <sup>1</sup>	Reference Noise Level @ 50 Feet (dBA L <sub>eq</sub> )	Highest Reference Noise Level (dBA L <sub>eq</sub> )
Site Preparation	Scraper, Water Truck, & Dozer Activity	75.3	75.3
	Backhoe	64.2	
	Water Truck Pass-By & Backup Alarm	71.9	
Grading	Rough Grading Activities	73.5	73.5
	Water Truck Pass-By & Backup Alarm	71.9	
	Construction Vehicle Maintenance Activities	67.5	
Building Construction	Foundation Trenching	68.2	71.6
	Framing	62.3	
	Concrete Mixer Backup Alarms & Air Brakes	71.6	
Paving	Concrete Mixer Truck Movements	71.2	71.2
	Concrete Paver Activities	65.6	
	Concrete Mixer Pour & Paving Activities	65.9	
Architectural Coating	Air Compressors	65.2	65.2
	Generator	64.9	
	Crane	62.3	

<sup>1</sup> Reference construction noise level measurements taken by Urban Crossroads, Inc.

### 9.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. To assess the worst-case construction noise levels, the Project construction noise analysis relies on the highest noise level impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of primary construction activity (Project site boundary) to each receiver location. As shown on Table 9-2, construction noise levels are expected to range from 55.0 to 73.6 dBA L<sub>eq</sub> at the nearby receiver locations. Appendix 9.1 includes the detailed CadnaA construction noise model inputs.



**TABLE 9-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY**

Receiver Location <sup>1</sup>	Construction Noise Levels (dBA Leq)					
	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels <sup>2</sup>
R1	67.1	65.3	63.4	63.0	57.0	67.1
R2	65.1	63.3	61.4	61.0	55.0	65.1
R3	70.9	69.1	67.2	66.8	60.8	70.9
R4	73.6	71.8	69.9	69.5	63.5	73.6

<sup>1</sup> Noise receiver locations are shown on Exhibit 9-A.

<sup>2</sup> Construction noise level calculations based on distance from the project site boundaries (construction activity area) to nearby receiver locations. CadnaA construction noise model inputs are included in Appendix 9.1.

### 9.3 CONSTRUCTION NOISE LEVEL COMPLIANCE

Project construction activities will comply with the City's Noise Ordinance. Although neither the City's General Plan nor Municipal Code contain quantified limits on construction noise levels, to evaluate whether the Project will generate potentially significant short-term noise levels at nearby receiver locations, a construction-related the NIOSH noise level threshold of 85 dBA Leq is used as acceptable thresholds to assess construction noise level impacts. The construction noise analysis shows that the nearby receiver locations will not experience noise levels above the 85 dBA Leq significance threshold during Project construction activities as shown on Table 9-3. Therefore, the noise impacts due to Project construction noise is considered *less than significant* at all receiver locations

**TABLE 9-3: CONSTRUCTION NOISE LEVEL COMPLIANCE**

Receiver Location <sup>1</sup>	Construction Noise Levels (dBA Leq)		
	Highest Construction Noise Levels <sup>2</sup>	Threshold <sup>3</sup>	Threshold Exceeded? <sup>4</sup>
R1	67.1	85	No
R2	65.1	85	No
R3	70.9	85	No
R4	73.6	85	No

<sup>1</sup> Noise receiver locations are shown on Exhibit 9-A.

<sup>2</sup> Highest construction noise level calculations based on distance from the construction noise source activity to nearby receiver locations as shown on Table 9-2.

<sup>3</sup> Construction noise level thresholds as shown on Table 4-1.

<sup>4</sup> Do the estimated Project construction noise levels exceed the construction noise level threshold?

## 9.4 CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. The proposed Project's construction activities most likely to cause vibration impacts are:

- Heavy Construction Equipment: Although all heavy mobile construction equipment has the potential of causing at least some perceptible vibration while operating close to buildings, the vibration is usually short-term and is not of sufficient magnitude to cause building damage.
- Trucks: Trucks hauling building materials to construction sites can be sources of vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site include grading. Using the vibration source level of construction equipment provided on Table 6-2 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts.

Table 9-4 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 38 feet (at location R4) to 124 feet (at location R2) from Project construction activities (at the Project site boundary), construction vibration levels are estimated to range from 66.1 to 81.5 VdB and will remain below the FTA Transit Noise and Vibration Impact Assessment maximum acceptable vibration criteria by use at all receiver locations. Therefore, the Project-related vibration impacts are considered *less than significant* during the construction activities at the Project site.

Moreover, the vibration levels reported at the sensitive receiver locations are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.

TABLE 9-4: CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver Location <sup>1</sup>	Land Use	Distance to Construction Activity (Feet)	Receiver Vibration Levels (VdB) <sup>2</sup>					Threshold VdB <sup>3</sup>	Threshold Exceeded? <sup>4</sup>
			Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Highest Vibration Levels		
R1	Residential	90'	41.3	62.3	69.3	70.3	70.3	78	No
R2	Residential	124'	37.1	58.1	65.1	66.1	66.1	78	No
R3	Office	89'	41.5	62.5	69.5	70.5	70.5	84	No
R4	Industrial	38'	52.5	73.5	80.5	81.5	81.5	90	No

<sup>1</sup> Noise receiver locations are shown on Exhibit 8-A.

<sup>2</sup> Based on the Vibration Source Levels of Construction Equipment included on Table 6-5.

<sup>3</sup> FTA Transit Noise and Vibration Impact Assessment maximum acceptable vibration criteria (see Section 3.5)

<sup>4</sup> Does the vibration level exceed the maximum acceptable vibration threshold?

## 10 REFERENCES

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2. **Harris, Cyril M.** *Noise Control in Buildings.* s.l. : McGraw-Hill, Inc., 1994.
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6. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
7. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
8. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
9. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
10. **Occupational Safety and Health Administration.** *Standard 29 CFR, Part 1910.*
11. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment.* September 2018.
12. **Office of Planning and Research.** *State of California General Plan Guidelines.* October 2017.
13. **City of Orange.** *General Plan Noise Element.* March 2010.
14. **Office of Planning and Research.** *State of California General Plan Guidelines.* 2018.
15. **National Institute for Occupational Safety and Health.** *Criteria for Recommended Standard: Occupational Noise Exposure.* June 1998.
16. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment.* May 2006.
17. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
18. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
19. **U.S. Department of Transportation.** *Crossing Inventory Form, Crossing Number 027015T.* January 2019.
20. **California Department of Transportation.** *Traffic Noise Analysis Protocol.* May 2011.
21. **Urban Crossroads, Inc.** *Orange Corporate Yard Affordable Housing Air Quality Impact Analysis.* March 2020.

22. —. *Orange Corporate Yard Affordable Housing Air Quality Impact Analysis*. March 2020.

## 11 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Orange Corporate Yard Affordable Housing Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5979.

Bill Lawson, P.E., INCE  
Principal  
URBAN CROSSROADS, INC.  
260 E. Baker Street, Suite 200  
Costa Mesa, CA 92626  
(949) 336-5979  
[blawson@urbanxroads.com](mailto:blawson@urbanxroads.com)



### EDUCATION

Master of Science in Civil and Environmental Engineering  
California Polytechnic State University, San Luis Obispo • December, 1993

Bachelor of Science in City and Regional Planning  
California Polytechnic State University, San Luis Obispo • June, 1992

### PROFESSIONAL REGISTRATIONS

PE – Registered Professional Traffic Engineer – TR 2537 • January, 2009  
AICP – American Institute of Certified Planners – 013011 • June, 1997–January 1, 2012  
PTP – Professional Transportation Planner • May, 2007 – May, 2013  
INCE – Institute of Noise Control Engineering • March, 2004

### PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America  
ITE – Institute of Transportation Engineers

### PROFESSIONAL CERTIFICATIONS

Certified Acoustical Consultant – County of Orange • February, 2011  
FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013

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**APPENDIX 3.1:**  
**CITY ORANGE MUNICIPAL CODE**

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## Chapter 8.24 - NOISE CONTROL<sup>[2]</sup>

### Sections:

#### Footnotes:

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**Editor's note**— Ord. No. 1-14, § I, adopted August 12, 2014, repealed the former Ch. 8.24, §§ 8.24.010—8.24.110 and enacted a new Ch. 8.24 as set out herein. The former Ch. 8.24 pertained to similar subject matter and derived from Prior Code 9500.1—9500.16; Ord. Nos. 49-74, 17-74, 1-80, and 26-96.

#### 8.24.010 - Policy.

- A. In order to control unnecessary, excessive and annoying sounds emanating from the City, it is the policy of the City to regulate such sounds generated from all sources as specified in this chapter. The intent of this chapter is to protect residential land uses from unnecessary, excessive and annoying sounds.
- B. It is determined that certain sound levels are detrimental to the public health, welfare and safety, and contrary to public interest.

(Ord. No. 1-14, § I, 8-12-14)

#### 8.24.020 - Definitions.

The following words, phrases and terms as used in this chapter shall have the meaning as indicated below:

- A. "Ambient noise level" means the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.
- B. "Adjusted ambient noise level" means the measured ambient noise level plus 3 dB (A). Three (3) dB (A) is the industry-accepted threshold of human perceptibility for a change in the noise environment.
- C. "Decibel (dB)" means a unit which denotes the ratio between two quantities which are proportional to power: the number of decibels corresponding to the ratio of two amounts of power is ten times the logarithm to the base ten of this ratio.
- D. "Emergency machinery, vehicle or work" means any machinery, vehicle or work used, employed or performed in an effort to protect, provide or restore safe conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.
- E. "Fixed noise source" means a stationary noise source which creates sounds while fixed or motionless, including but not limited to construction equipment, industrial and commercial machinery and equipment, pumps, fans, compressors, generators, air conditioners and refrigeration equipment.
- F. "Grading" means any excavating or filling of earth material or any combination thereof conducted to prepare a site for construction or other improvements thereon.
- G. "Hourly Average" ( $L_{eq}$ ) means the energy mean or average sound level over a one (1) hour period of time.
- H. "Impact noise" means the noise produced by the collision of one mass in motion with a second mass which may be either in motion or at rest.

- I. "Mobile noise source" means any noise source other than a fixed noise source.
- J. "Noise level" means the "A" weighted sound pressure level in decibels obtained by using a sound level meter at slow response with a reference pressure of twenty (20) microneutons per square meter. The unit of measurement shall be designated as dB(A).
- K. "Person" means a person, firm, association, co-partnership, joint venture, corporation or any entity, public or private in nature.
- L. "Recurring impulsive noise" means a noise of short duration, usually less than one (1) second, with an abrupt onset and rapid decay, which occurs repeatedly or in a cyclical manner. Examples include jack hammering, pile driving, or operational noise from a generator or other mechanical equipment that is cyclical in nature.
- M. "Residential property" means a parcel of real property which is developed and used either in part or in whole for residential purposes, other than transient uses such as hotels and motels.
- N. "Simple tone noise" means a noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished.
- O. "Sound level meter" means an instrument meeting American National Standard Institute's Standard SI.4- 1983 for Type 1 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.
- P. "Sound pressure level" of a sound, in decibels, means twenty times the logarithm to the base ten of the ratio of the pressure of the sound to a reference pressure, which reference pressure shall be explicitly stated.

(Ord. No. 1-14, § I, 8-12-14)

#### 8.24.030 - Noise Level Measurement Criteria.

Any noise level measurements made pursuant to the provisions of this chapter shall be performed using a sound level meter as defined in Section 8.24.020P.

(Ord. No. 1-14, § I, 8-12-14)

#### 8.24.040 - Exterior Standards.

- A. The following noise standards for fixed noise sources, unless otherwise specifically indicated, shall apply to all residential property:

**Table 8.24.040 Exterior Noise Standards**

	Noise Level	Time Period
Hourly Average ( $L_{eq}$ )	55 dB (A)	7:00 a.m.—10:00 p.m.
	50 dB (A)	10:00 p.m.—7:00 a.m.
Maximum Level	70 dB (A)	7:00 a.m.—10:00 p.m.
	65 dB (A)	10:00 p.m.—7:00 a.m.

- B. It is unlawful for any person at any location within the City to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured on any other residential property to exceed the noise standards identified in Table 8.24.040. For multi-family residential or mixed use developments located within the City's Urban Mixed Use, Neighborhood Mixed Use, Old Towne Mixed Use or Medium Density Residential General Plan land use districts, exterior noise standards shall apply to common recreation areas only and shall not apply to private exterior space (such as a private yard, patio, or balcony).
- C. In the event the ambient noise level exceeds the noise standards identified in Table 8.24.040 of this section, the "adjusted ambient noise level" shall be applied as the noise standard. In cases where the noise standard is adjusted due to a high ambient noise level, the noise standard shall not exceed the "adjusted ambient noise level", or 70 dB (A), whichever is less. In cases where the ambient noise level is already greater than 70 dB (A), the ambient noise level shall be applied as the noise standard.
- D. Each of the noise limits specified in Table 8.24.040 shall be reduced by 5 dB(A) for impact or simple tone noises, recurring impulsive noises, or for noises consisting of speech or music.

(Ord. No. 1-14, § I, 8-12-14)

#### 8.24.050 - Exemptions from Chapter Provisions.

The following activities shall be exempted from the provisions of this chapter:

- A. School bands, school athletic and school entertainment events;
- B. Outdoor gatherings, public dances, shows, and sporting and entertainment events provided such events are conducted pursuant to any permit requirements established by the City;
- C. Activities conducted on public parks, public playgrounds, and public or private school grounds;
- D. Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle or work;
- E. Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities take place between the hours of 7:00 a.m. and 8:00 p.m. on any day except for Sunday or a Federal holiday, or between the hours of 9:00 a.m. and 8:00 p.m. on Sunday or a Federal holiday. Noise generated outside of the hours specified are subject to the noise standards identified in Table 8.24.040;
- F. All mechanical devices, apparatus or equipment which are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions;
- G. Noise sources associated with agricultural operations provided such operations take place between the hours of 7:00 a.m. and 8:00 p.m. on any day except Sunday or a Federal holiday, or between the hours of 9:00 a.m. and 8:00 p.m. on Sunday or a Federal holiday;
- H. Noise sources associated with agricultural pest control through pesticide application, provided that the application is made in accordance with restricted material permits issued by or regulations enforced by the Agricultural Commissioner;
- I. Noise sources associated with the maintenance of real property, provided such activities take place between the hours of 7:00 a.m. and 8:00 p.m. on any day except Sunday or a Federal holiday, or between the hours of 9:00 a.m. and 8:00 p.m. on Sunday or a Federal holiday. Operation of leaf blowers are regulated under OMC Chapter 8.26;

- J. Industrial or commercial noise affecting residential units, when the residential unit is associated with said industrial or commercial use (e.g. caretaker's dwellings);
- K. Any maintenance or construction activity undertaken by a public agency or utility within street right of way;
- L. Mobile noise sources including but not limited to operational noise from trains, or automobiles or trucks traveling on roadways. **Transportation noise as related to noise/land use compatibility is subject to the City's General Plan Noise Element;**
- M. Any activity to the extent regulation thereof has been preempted by State or Federal Law.

(Ord. No. 1-14, § I, 8-12-14)

#### 8.24.060 - Special Provisions for Schools, Hospitals and Churches.

It is unlawful for any person to create any noise which causes the noise level at any school, hospital or church, while the same is in use, to exceed the noise limits as specified in Section 8.24.040, or which noise level unreasonably interferes with the use of such institutions.

(Ord. No. 1-14, § I, 8-12-14)

#### 8.24.070 - Measurement of Noise Levels.

The location selected for measuring exterior noise levels shall be the point closest to the noise source along the perimeter of the outdoor activity area (such as a private yard, patio, balcony, or common recreation area, as applicable pursuant to Section 8.24.040B. of this chapter) of the affected residential receiving property. If the location of the outdoor activity area is unknown or unclear, the noise standard shall be applied at the point closest to the noise source along the property line of the affected residential receiving property.

(Ord. No. 1-14, § I, 8-12-14)

#### 8.24.080 - Enforcement Authority.

- A. The Chief Building Official or his/her designee are directed to enforce the provisions of this chapter. The Chief Building Official or his/her designee are authorized, pursuant to Penal Code Section 836.5, to arrest any person without a warrant when they have reasonable cause to believe that such person has committed a misdemeanor in their presence.
- B. No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this chapter while such person is engaged in the performance of his duty.

(Ord. No. 1-14, § I, 8-12-14)

#### 8.24.090 - Violation—Public Nuisance.

Any violation of this chapter is a public nuisance and may be abated in accordance with law. The expense of such abatement may, by resolution of the City Council, be declared to be a lien against the property on which such nuisance is maintained, and such lien shall be made a personal obligation of the property owner.

(Ord. No. 1-14, § I, 8-12-14)

#### 8.24.100 - Alternative Noise Prohibition.

Notwithstanding any other provisions of this chapter and in addition thereto, it is unlawful for any person to willfully make, continue, maintain, permit or cause to be made, continued, maintained, or permitted, any loud, unnecessary and unusual noise which disturbs the peace or quiet of any residential property or which causes discomfort or annoyance to any reasonable person of normal sensitivity residing in the area. It shall be a prima facie violation of this section if any power tool, radio, receiving set, television, music amplifier, tape player, record player, compact disc player, musical instrument or similar device is played, used or permitted to be played or used between the hours of 10:00 p.m. and 7:00 a.m. when audible from a distance of one hundred (100) feet from the property line of the noise source or from a distance of one hundred fifty (150) feet from any non-stationary noise source. For the purpose of this chapter, these prohibitions shall also be applied to stationary vehicles parked on the street or on private property. The determination may be made by a peace officer or may be proven by the testimony of any other person. Furthermore, and in addition to the provisions of this chapter, noise prohibitions pursuant to Penal Code Section 415 and Orange Municipal Code Chapter 9.39 may also be applied.

(Ord. No. 1-14, § I, 8-12-14)

#### 8.24.110 - Violation—Misdemeanor.

Any person violating any of the provisions of this chapter shall be deemed guilty of a misdemeanor. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such. The provisions of this chapter shall not be construed as permitting conduct not prescribed herein and shall not affect the enforceability of any other applicable provisions of law.

(Ord. No. 1-14, § I, 8-12-14)



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## **APPENDIX 5.1:**

### **STUDY AREA PHOTOS**

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JN:13210 Study Area Photos



L1\_E

33, 48' 27.020000", 117, 51' 19.360000"



L1\_N

33, 48' 27.040000", 117, 51' 19.360000"



L1\_S

33, 48' 27.040000", 117, 51' 19.330000"



L1\_W

33, 48' 27.000000", 117, 51' 19.360000"



L2\_E

33, 48' 21.010000", 117, 51' 24.000000"



L2\_N

33, 48' 21.050000", 117, 51' 23.970000"



## JN:13210 Study Area Photos



L2\_S

33, 48' 21.020000", 117, 51' 23.970000"



L2\_W

33, 48' 20.980000", 117, 51' 23.970000"



L3\_E

33, 48' 22.070000", 117, 51' 34.160000"



L3\_N

33, 48' 22.020000", 117, 51' 34.160000"



L3\_S

33, 48' 22.050000", 117, 51' 34.160000"



L3\_W

33, 48' 22.070000", 117, 51' 34.160000"

**APPENDIX 5.2:**

**NOISE LEVEL MEASUREMENT WORKSHEETS**

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## 24-Hour Noise Level Measurement Summary

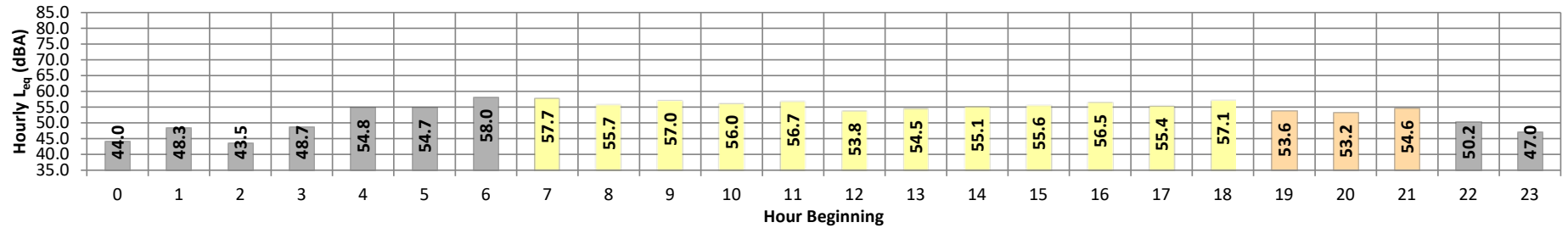
Date: Wednesday, February 26, 2020  
Project: Orange Corporate Yard

Location: L1 - Located east of the Project site on West Hoover Avenue  
near existing multi-family residential homes.

Meter: Piccolo I

JN: 13210  
Analyst: P. Mara

Hourly  $L_{eq}$  dBA Readings (unadjusted)



Timeframe	Hour	L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L <sub>eq</sub>	Adj.	Adj. L <sub>eq</sub>
Night	0	44.0	58.9	38.9	54.0	52.0	48.0	46.0	42.0	41.0	39.0	39.0	39.0	44.0	10.0	54.0
	1	48.3	72.3	38.7	59.0	57.0	52.0	48.0	42.0	40.0	39.0	39.0	39.0	48.3	10.0	58.3
	2	43.5	60.0	38.8	51.0	49.0	47.0	46.0	43.0	41.0	39.0	39.0	39.0	43.5	10.0	53.5
	3	48.7	69.8	38.9	58.0	56.0	53.0	51.0	46.0	44.0	40.0	40.0	39.0	48.7	10.0	58.7
	4	54.8	81.4	40.6	60.0	58.0	56.0	55.0	50.0	48.0	44.0	43.0	42.0	54.8	10.0	64.8
	5	54.7	68.5	47.3	62.0	61.0	59.0	58.0	54.0	52.0	49.0	49.0	48.0	54.7	10.0	64.7
	6	58.0	77.4	50.2	68.0	65.0	62.0	60.0	56.0	54.0	52.0	51.0	51.0	58.0	10.0	68.0
Day	7	57.7	81.3	45.1	66.0	64.0	61.0	60.0	56.0	53.0	48.0	47.0	46.0	57.7	0.0	57.7
	8	55.7	73.5	45.2	65.0	63.0	61.0	59.0	55.0	52.0	47.0	47.0	46.0	55.7	0.0	55.7
	9	57.0	81.1	43.7	68.0	65.0	61.0	58.0	54.0	51.0	47.0	46.0	45.0	57.0	0.0	57.0
	10	56.0	74.3	40.8	67.0	64.0	61.0	59.0	54.0	50.0	45.0	43.0	42.0	56.0	0.0	56.0
	11	56.7	81.0	44.3	65.0	63.0	60.0	59.0	55.0	52.0	47.0	46.0	45.0	56.7	0.0	56.7
	12	53.8	72.4	43.7	64.0	61.0	58.0	56.0	53.0	50.0	47.0	46.0	44.0	53.8	0.0	53.8
	13	54.5	77.6	44.7	64.0	61.0	58.0	57.0	53.0	50.0	47.0	46.0	45.0	54.5	0.0	54.5
	14	55.1	75.2	44.5	65.0	63.0	60.0	58.0	54.0	51.0	47.0	46.0	45.0	55.1	0.0	55.1
	15	55.6	78.0	43.3	65.0	63.0	59.0	58.0	54.0	50.0	47.0	46.0	44.0	55.6	0.0	55.6
	16	56.5	80.1	44.2	66.0	62.0	59.0	58.0	54.0	51.0	47.0	46.0	45.0	56.5	0.0	56.5
	17	55.4	79.6	43.4	65.0	62.0	59.0	57.0	53.0	49.0	46.0	45.0	44.0	55.4	0.0	55.4
	18	57.1	83.0	43.0	67.0	64.0	59.0	58.0	53.0	49.0	45.0	44.0	43.0	57.1	0.0	57.1
Evening	19	53.6	73.0	43.0	65.0	62.0	57.0	56.0	52.0	48.0	45.0	44.0	43.0	53.6	5.0	58.6
	20	53.2	76.1	44.2	63.0	59.0	56.0	55.0	51.0	48.0	46.0	45.0	45.0	53.2	5.0	58.2
	21	54.6	79.2	45.0	65.0	62.0	57.0	55.0	52.0	49.0	46.0	46.0	45.0	54.6	5.0	59.6
Night	22	50.2	68.1	42.9	58.0	57.0	55.0	54.0	50.0	47.0	44.0	44.0	43.0	50.2	10.0	60.2
	23	47.0	64.4	42.0	55.0	53.0	50.0	49.0	46.0	45.0	43.0	43.0	42.0	47.0	10.0	57.0
Timeframe	Hour	L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L <sub>eq</sub> (dBA)		
Day	Min	53.8	72.4	40.8	64.0	61.0	58.0	56.0	53.0	49.0	45.0	43.0	42.0	24-Hour	Daytime	Nighttime
	Max	57.7	83.0	45.2	68.0	65.0	61.0	60.0	56.0	53.0	48.0	47.0	46.0			
Energy Average		56.1	Average:		65.6	62.9	59.7	58.1	54.0	50.7	46.7	45.7	44.5	54.7	55.7	52.4
Evening	Min	53.2	73.0	43.0	63.0	59.0	56.0	55.0	51.0	48.0	45.0	44.0	43.0			
	Max	54.6	79.2	45.0	65.0	62.0	57.0	56.0	52.0	49.0	46.0	46.0	45.0	24-Hour CNEL (dBA)		
Energy Average		53.8	Average:		64.3	61.0	56.7	55.3	51.7	48.3	45.7	45.0	44.3	59.8		
Night	Min	43.5	58.9	38.7	51.0	49.0	47.0	46.0	42.0	40.0	39.0	39.0	39.0			
	Max	58.0	81.4	50.2	68.0	65.0	62.0	60.0	56.0	54.0	52.0	51.0	51.0			
Energy Average		52.4	Average:		58.3	56.4	53.6	51.9	47.7	45.8	43.2	43.0	42.4			

## 24-Hour Noise Level Measurement Summary

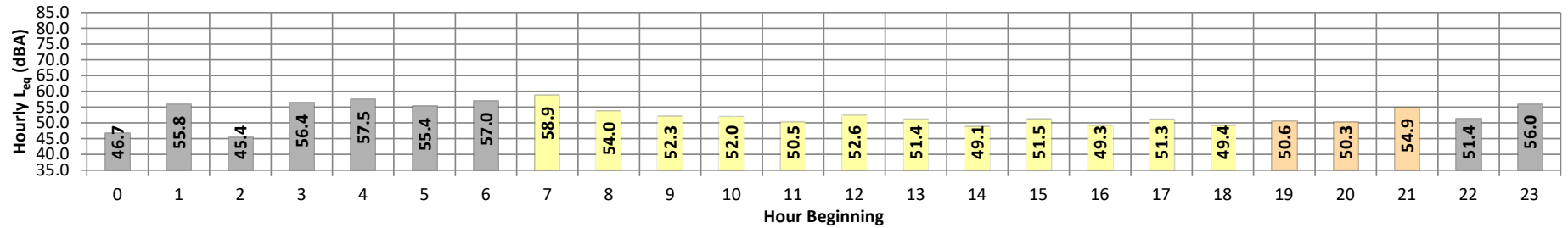
Date: Wednesday, February 26, 2020  
Project: Orange Corporate Yard

Location: L2 - Located southeast of the Project site north of West  
Brenna Lane near Citrus Grove Apartments.

Meter: Piccolo I

JN: 13210  
Analyst: P. Mara

Hourly  $L_{eq}$  dBA Readings (unadjusted)



Timeframe	Hour	L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L <sub>eq</sub>	Adj.	Adj. L <sub>eq</sub>
Night	0	46.7	60.5	40.7	60.0	54.0	50.0	47.0	44.0	43.0	41.0	41.0	41.0	46.7	10.0	56.7
	1	55.8	76.7	40.5	65.0	63.0	63.0	63.0	44.0	42.0	41.0	41.0	40.0	55.8	10.0	65.8
	2	45.4	60.0	40.3	55.0	51.0	50.0	47.0	44.0	43.0	41.0	41.0	40.0	45.4	10.0	55.4
	3	56.4	63.4	42.1	62.0	62.0	61.0	61.0	60.0	47.0	43.0	43.0	42.0	56.4	10.0	66.4
	4	57.5	80.7	44.6	69.0	64.0	61.0	57.0	52.0	49.0	46.0	45.0	45.0	57.5	10.0	67.5
	5	55.4	68.1	49.6	65.0	63.0	58.0	56.0	54.0	53.0	51.0	51.0	50.0	55.4	10.0	65.4
	6	57.0	73.5	52.4	65.0	65.0	61.0	59.0	55.0	55.0	53.0	53.0	53.0	57.0	10.0	67.0
Day	7	58.9	85.2	48.0	67.0	63.0	59.0	57.0	53.0	52.0	49.0	49.0	48.0	58.9	0.0	58.9
	8	54.0	72.4	43.1	63.0	62.0	60.0	58.0	52.0	48.0	46.0	45.0	44.0	54.0	0.0	54.0
	9	52.3	78.5	42.5	62.0	60.0	56.0	54.0	48.0	46.0	44.0	43.0	43.0	52.3	0.0	52.3
	10	52.0	70.8	42.5	63.0	60.0	55.0	54.0	50.0	47.0	44.0	44.0	43.0	52.0	0.0	52.0
	11	50.5	67.0	42.3	59.0	58.0	55.0	54.0	50.0	46.0	44.0	44.0	43.0	50.5	0.0	50.5
	12	52.6	65.6	43.9	60.0	59.0	57.0	56.0	53.0	50.0	46.0	45.0	45.0	52.6	0.0	52.6
	13	51.4	72.4	43.0	61.0	58.0	55.0	54.0	49.0	47.0	45.0	44.0	43.0	51.4	0.0	51.4
	14	49.1	65.3	43.4	58.0	56.0	53.0	52.0	48.0	46.0	45.0	44.0	44.0	49.1	0.0	49.1
	15	51.5	73.4	44.2	61.0	60.0	56.0	54.0	49.0	48.0	46.0	45.0	45.0	51.5	0.0	51.5
	16	49.3	65.8	43.0	57.0	56.0	53.0	51.0	48.0	47.0	45.0	44.0	43.0	49.3	0.0	49.3
Evening	17	51.3	67.4	43.6	60.0	58.0	56.0	54.0	50.0	48.0	46.0	46.0	45.0	51.3	0.0	51.3
	18	49.4	70.3	44.1	58.0	56.0	54.0	51.0	47.0	46.0	45.0	45.0	44.0	49.4	0.0	49.4
	19	50.6	72.0	45.4	60.0	58.0	54.0	52.0	49.0	48.0	46.0	46.0	45.0	50.6	5.0	55.6
Night	20	50.3	63.2	45.9	57.0	56.0	53.0	52.0	50.0	49.0	47.0	47.0	46.0	50.3	5.0	55.3
	21	54.9	73.4	46.1	63.0	62.0	62.0	58.0	52.0	51.0	48.0	47.0	47.0	54.9	5.0	59.9
Night	22	51.4	64.4	45.4	60.0	59.0	56.0	54.0	50.0	48.0	46.0	46.0	46.0	51.4	10.0	61.4
	23	56.0	72.4	45.3	64.0	63.0	62.0	60.0	57.0	50.0	47.0	46.0	45.0	56.0	10.0	66.0
Timeframe	Hour	L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L <sub>eq</sub> (dBA)		
Day	Min	49.1	65.3	42.3	57.0	56.0	53.0	51.0	47.0	46.0	44.0	43.0	43.0	24-Hour	Daytime	Nighttime
	Max	58.9	85.2	48.0	67.0	63.0	60.0	58.0	53.0	52.0	49.0	49.0	48.0			
Energy Average		52.9	Average:		60.8	58.8	55.8	54.1	49.8	47.6	45.4	44.8	44.2	53.8	52.8	55.0
Evening	Min	50.3	63.2	45.4	57.0	56.0	53.0	52.0	49.0	48.0	46.0	46.0	45.0			
	Max	54.9	73.4	46.1	63.0	62.0	62.0	58.0	52.0	51.0	48.0	47.0	47.0	24-Hour CNEL (dBA)		
Energy Average		52.5	Average:		60.0	58.7	56.3	54.0	50.3	49.3	47.0	46.7	46.0	61.3		
Night	Min	45.4	60.0	40.3	55.0	51.0	50.0	47.0	44.0	42.0	41.0	41.0	40.0			
	Max	57.5	80.7	52.4	69.0	65.0	63.0	63.0	60.0	55.0	53.0	53.0	53.0			
Energy Average		55.0	Average:		62.8	60.4	58.0	56.0	51.1	47.8	45.4	45.2	44.7			

## 24-Hour Noise Level Measurement Summary

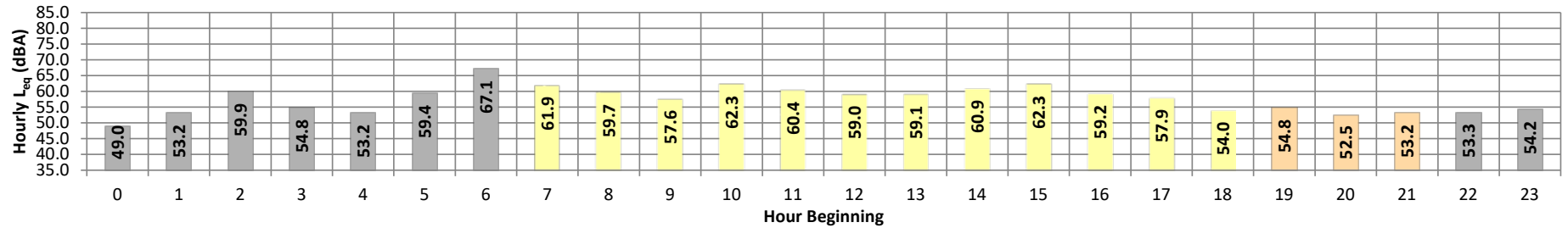
Date: Wednesday, February 26, 2020  
Project: Orange Corporate Yard

Location: L3 - Located West of the Project site on Struck Avenue near  
the Department of public works.

Meter: Piccolo I

JN: 13210  
Analyst: P. Mara

Hourly  $L_{eq}$  dBA Readings (unadjusted)



Timeframe	Hour	L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L <sub>eq</sub>	Adj.	Adj. L <sub>eq</sub>
Night	0	49.0	68.9	41.9	59.0	56.0	52.0	50.0	47.0	45.0	43.0	42.0	42.0	49.0	10.0	59.0
	1	53.2	74.1	42.6	63.0	61.0	59.0	57.0	48.0	46.0	44.0	43.0	43.0	53.2	10.0	63.2
	2	59.9	85.3	43.5	72.0	67.0	58.0	55.0	48.0	47.0	45.0	44.0	44.0	59.9	10.0	69.9
	3	54.8	68.7	45.5	62.0	61.0	60.0	59.0	55.0	50.0	47.0	47.0	46.0	54.8	10.0	64.8
	4	53.2	70.9	43.6	63.0	61.0	57.0	56.0	52.0	50.0	46.0	45.0	45.0	53.2	10.0	63.2
	5	59.4	78.6	50.0	70.0	67.0	63.0	61.0	57.0	55.0	52.0	52.0	51.0	59.4	10.0	69.4
	6	67.1	98.1	53.4	73.0	70.0	67.0	65.0	60.0	58.0	55.0	55.0	54.0	67.1	10.0	77.1
Day	7	61.9	92.1	47.2	69.0	67.0	64.0	62.0	57.0	54.0	50.0	49.0	48.0	61.9	0.0	61.9
	8	59.7	84.6	41.6	70.0	67.0	63.0	61.0	56.0	51.0	46.0	45.0	43.0	59.7	0.0	59.7
	9	57.6	74.9	41.8	68.0	66.0	63.0	61.0	56.0	51.0	45.0	44.0	42.0	57.6	0.0	57.6
	10	62.3	87.3	43.5	72.0	68.0	64.0	62.0	56.0	52.0	47.0	46.0	44.0	62.3	0.0	62.3
	11	60.4	82.3	45.2	72.0	68.0	65.0	63.0	57.0	53.0	48.0	48.0	46.0	60.4	0.0	60.4
	12	59.0	82.2	45.6	67.0	65.0	62.0	61.0	58.0	54.0	49.0	48.0	47.0	59.0	0.0	59.0
	13	59.1	84.5	45.6	70.0	66.0	63.0	61.0	56.0	53.0	49.0	48.0	47.0	59.1	0.0	59.1
	14	60.9	83.5	46.2	73.0	69.0	65.0	62.0	57.0	53.0	49.0	48.0	48.0	60.9	0.0	60.9
	15	62.3	85.5	45.8	73.0	69.0	65.0	63.0	58.0	53.0	48.0	47.0	46.0	62.3	0.0	62.3
	16	59.2	81.9	43.8	69.0	67.0	62.0	60.0	55.0	51.0	47.0	46.0	45.0	59.2	0.0	59.2
Evening	17	57.9	81.7	44.1	68.0	64.0	61.0	59.0	55.0	52.0	49.0	47.0	45.0	57.9	0.0	57.9
	18	54.0	74.6	46.8	63.0	60.0	58.0	57.0	53.0	49.0	48.0	47.0	47.0	54.0	0.0	54.0
	19	54.8	77.4	46.5	64.0	62.0	59.0	57.0	51.0	49.0	47.0	47.0	47.0	54.8	5.0	59.8
	20	52.5	72.4	46.6	61.0	59.0	56.0	55.0	51.0	49.0	47.0	47.0	47.0	52.5	5.0	57.5
	21	53.2	68.8	47.7	61.0	59.0	56.0	55.0	52.0	51.0	49.0	48.0	48.0	53.2	5.0	58.2
Night	22	53.3	70.0	47.2	63.0	60.0	58.0	57.0	52.0	50.0	48.0	48.0	47.0	53.3	10.0	63.3
	23	54.2	81.5	47.1	62.0	58.0	55.0	54.0	51.0	49.0	48.0	48.0	47.0	54.2	10.0	64.2
Timeframe	Hour	L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L <sub>eq</sub> (dBA)		
Day	Min	54.0	74.6	41.6	63.0	60.0	58.0	57.0	53.0	49.0	45.0	44.0	42.0	24-Hour	Daytime	Nighttime
	Max	62.3	92.1	47.2	73.0	69.0	65.0	63.0	58.0	54.0	50.0	49.0	48.0			
Energy Average		60.0	Average:		69.5	66.3	62.9	61.0	56.2	52.2	47.9	46.9	45.7	59.4	59.3	59.6
Evening	Min	52.5	68.8	46.5	61.0	59.0	56.0	55.0	51.0	49.0	47.0	47.0	47.0			
	Max	54.8	77.4	47.7	64.0	62.0	59.0	57.0	52.0	51.0	49.0	48.0	48.0	24-Hour CNEL (dBA)		
Energy Average		53.6	Average:		62.0	60.0	57.0	55.7	51.3	49.7	47.7	47.3	47.3	66.1		
Night	Min	49.0	68.7	41.9	59.0	56.0	52.0	50.0	47.0	45.0	43.0	42.0	42.0			
	Max	67.1	98.1	53.4	73.0	70.0	67.0	65.0	60.0	58.0	55.0	55.0	54.0			
Energy Average		59.6	Average:		65.2	62.3	58.8	57.1	52.2	50.0	47.6	47.1	46.6			

## 24-Hour Noise Level Measurement Summary

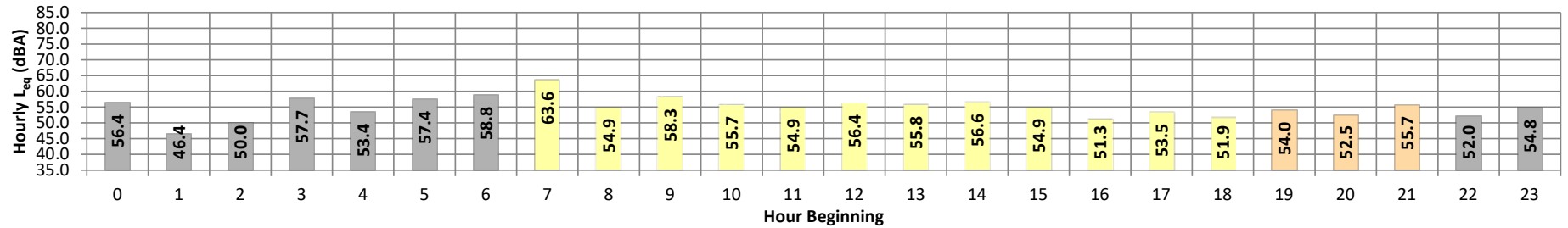
Date: Wednesday, February 26, 2020  
Project: Orange Corporate Yard

Location: L4 - Located north of the Project site in the parking lot of the Metro Court Plaza.

Meter: Piccolo I

JN: 13210  
Analyst: P. Mara

Hourly  $L_{eq}$  dBA Readings (unadjusted)



Timeframe	Hour	L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L <sub>eq</sub>	Adj.	Adj. L <sub>eq</sub>
Night	0	56.4	79.3	42.3	68.0	66.0	62.0	56.0	46.0	44.0	43.0	43.0	43.0	56.4	10.0	66.4
	1	46.4	61.6	40.9	60.0	51.0	46.0	45.0	44.0	43.0	42.0	41.0	41.0	46.4	10.0	56.4
	2	50.0	65.8	42.2	63.0	62.0	52.0	48.1	46.0	45.0	43.0	43.0	42.0	50.0	10.0	60.0
	3	57.7	67.5	44.6	63.0	63.0	63.0	63.0	60.0	49.0	46.0	45.0	45.0	57.7	10.0	67.7
	4	53.4	69.3	44.6	65.0	63.0	56.0	54.0	52.0	50.0	46.0	46.0	45.0	53.4	10.0	63.4
	5	57.4	78.9	50.1	66.0	63.0	61.0	59.0	56.0	54.0	52.0	51.0	50.0	57.4	10.0	67.4
	6	58.8	76.5	53.2	67.0	66.0	63.0	61.0	58.0	56.0	55.0	54.0	53.0	58.8	10.0	68.8
Day	7	63.6	87.7	47.0	75.0	72.0	68.0	65.0	58.0	55.0	50.0	49.0	48.0	63.6	0.0	63.6
	8	54.9	79.3	41.9	65.0	63.0	60.0	57.0	51.0	48.0	45.0	44.0	43.0	54.9	0.0	54.9
	9	58.3	80.0	44.0	69.0	66.0	62.0	60.0	54.0	50.0	46.0	46.0	45.0	58.3	0.0	58.3
	10	55.7	77.3	44.9	63.0	62.0	60.0	59.0	54.0	52.0	48.0	47.0	46.0	55.7	0.0	55.7
	11	54.9	75.4	44.4	61.0	60.0	59.0	58.0	56.0	52.0	47.0	46.0	45.0	54.9	0.0	54.9
	12	56.4	67.2	45.6	61.0	61.0	60.0	59.0	57.0	55.0	50.0	49.0	47.0	56.4	0.0	56.4
	13	55.8	73.0	45.6	64.0	63.0	61.0	59.0	55.0	52.0	48.0	48.0	46.0	55.8	0.0	55.8
	14	56.6	81.4	45.6	66.0	64.0	61.0	59.0	55.0	53.0	50.0	49.0	47.0	56.6	0.0	56.6
	15	54.9	66.9	46.1	61.0	60.0	58.0	58.0	56.0	52.0	48.0	47.0	46.0	54.9	0.0	54.9
	16	51.3	67.7	43.8	60.0	58.0	55.0	54.0	50.0	49.0	46.0	46.0	45.0	51.3	0.0	51.3
	17	53.5	68.4	46.8	63.0	61.0	59.0	56.0	52.0	51.0	49.0	48.0	47.0	53.5	0.0	53.5
	18	51.9	64.8	45.1	62.0	60.0	57.0	54.0	50.0	49.0	47.0	47.0	46.0	51.9	0.0	51.9
Evening	19	54.0	72.8	45.9	65.0	64.0	59.0	55.0	51.0	48.0	47.0	46.0	46.0	54.0	5.0	59.0
	20	52.5	68.3	46.6	63.0	62.0	56.0	53.0	51.0	50.0	48.0	48.0	47.0	52.5	5.0	57.5
	21	55.7	73.2	47.6	66.0	65.0	64.0	56.0	52.0	51.0	49.0	48.0	48.0	55.7	5.0	60.7
Night	22	52.0	64.6	46.7	64.0	63.0	53.0	52.0	50.0	49.0	48.0	48.0	47.0	52.0	10.0	62.0
	23	54.8	77.4	41.6	67.0	65.0	60.0	53.0	46.0	45.0	43.0	43.0	42.0	54.8	10.0	64.8
Timeframe	Hour	L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L <sub>eq</sub> (dBA)		
Day	Min	51.3	64.8	41.9	60.0	58.0	55.0	54.0	50.0	48.0	45.0	44.0	43.0	24-Hour	Daytime	Nighttime
	Max	63.6	87.7	47.0	75.0	72.0	68.0	65.0	58.0	55.0	50.0	49.0	48.0			
Energy Average		57.0	Average:		64.2	62.5	60.0	58.2	54.0	51.5	47.8	47.2	45.9	56.2	56.6	55.4
Evening	Min	52.5	68.3	45.9	63.0	62.0	56.0	53.0	51.0	48.0	47.0	46.0	46.0			
	Max	55.7	73.2	47.6	66.0	65.0	64.0	56.0	52.0	51.0	49.0	48.0	48.0	24-Hour CNEL (dBA)		
Energy Average		54.3	Average:		64.7	63.7	59.7	54.7	51.3	49.7	48.0	47.3	47.0	62.2		
Night	Min	46.4	61.6	40.9	60.0	51.0	46.0	45.0	44.0	43.0	42.0	41.0	41.0			
	Max	58.8	79.3	53.2	68.0	66.0	63.0	63.0	60.0	56.0	55.0	54.0	53.0			
Energy Average		55.4	Average:		64.8	62.4	57.3	54.6	50.9	48.3	46.4	46.0	45.3			

## **APPENDIX 6.1:**

### **RAIL PARAMETERS**

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# U. S. DOT CROSSING INVENTORY FORM

## DEPARTMENT OF TRANSPORTATION

FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Instructions for the initial reporting of the following types of new or previously unreported crossings: For public highway-rail grade crossings, complete the entire inventory Form. For private highway-rail grade crossings, complete the Header, Parts I and II, and the Submission Information section. For public pathway grade crossings (including pedestrian station grade crossings), complete the Header, Parts I and II, and the Submission Information section. For Private pathway grade crossings, complete the Header, Parts I and II, and the Submission Information section. For grade-separated highway-rail or pathway crossings (including pedestrian station crossings), complete the Header, Part I, and the Submission Information section. For changes to existing data, complete the Header, Part I Items 1-3, and the Submission Information section, in addition to the updated data fields. Note: For private crossings only, Part I Item 20 and Part III Item 2.K. are required unless otherwise noted. An asterisk \* denotes an optional field.

<b>A. Revision Date</b> (MM/DD/YYYY) 01 / 17 / 2019	<b>B. Reporting Agency</b> <input checked="" type="checkbox"/> Railroad <input type="checkbox"/> Transit <input type="checkbox"/> State <input type="checkbox"/> Other	<b>C. Reason for Update (Select only one)</b> <input checked="" type="checkbox"/> Change in Data <input type="checkbox"/> New Crossing <input type="checkbox"/> Closed <input type="checkbox"/> Re-Open <input type="checkbox"/> Date Change Only <input type="checkbox"/> Change in Primary Operating RR <input type="checkbox"/> No Train Traffic <input type="checkbox"/> Quiet Zone Update <input type="checkbox"/> Admin. Correction	<b>D. DOT Crossing Inventory Number</b> 027015T
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### Part I: Location and Classification Information

<b>1. Primary Operating Railroad</b> Southern California Regional Rail Authority [SCAX]		<b>2. State</b> CALIFORNIA		<b>3. County</b> ORANGE	
<b>4. City / Municipality</b> <input checked="" type="checkbox"/> In <input type="checkbox"/> Near    ORANGE		<b>5. Street/Road Name &amp; Block Number</b> KATELLA AVENUE    0 (Street/Road Name)    * (Block Number)		<b>6. Highway Type &amp; No.</b> ARTERIA	
<b>7. Do Other Railroads Operate a Separate Track at Crossing?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Specify RR			<b>8. Do Other Railroads Operate Over Your Track at Crossing?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, Specify RR    BNSF		
<b>9. Railroad Division or Region</b> <input checked="" type="checkbox"/> None		<b>10. Railroad Subdivision or District</b> <input type="checkbox"/> None    OLIVE		<b>11. Branch or Line Name</b> <input checked="" type="checkbox"/> None	
<b>12. RR Milepost</b> OL    0004.46    0 (prefix)   (nnnn.nnn)   (suffix)					
<b>13. Line Segment</b> * 101OL-44		<b>14. Nearest RR Timetable Station</b> * ORANGE		<b>15. Parent RR (if applicable)</b> <input type="checkbox"/> N/A    SCAX	
<b>16. Crossing Owner (if applicable)</b> <input type="checkbox"/> N/A    SCAX					
<b>17. Crossing Type</b> <input checked="" type="checkbox"/> Public <input type="checkbox"/> Private		<b>18. Crossing Purpose</b> <input checked="" type="checkbox"/> Highway <input type="checkbox"/> Pathway, Ped. <input type="checkbox"/> Station, Ped.		<b>19. Crossing Position</b> <input checked="" type="checkbox"/> At Grade <input type="checkbox"/> RR Under <input type="checkbox"/> RR Over	
<b>20. Public Access (if Private Crossing)</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<b>21. Type of Train</b> <input checked="" type="checkbox"/> Freight <input type="checkbox"/> Intercity Passenger <input checked="" type="checkbox"/> Commuter <input type="checkbox"/> Transit <input type="checkbox"/> Shared Use Transit <input type="checkbox"/> Tourist/Other		<b>22. Average Passenger Train Count Per Day</b> <input type="checkbox"/> Less Than One Per Day <input checked="" type="checkbox"/> Number Per Day 16	
<b>23. Type of Land Use</b> <input type="checkbox"/> Open Space <input type="checkbox"/> Farm <input type="checkbox"/> Residential <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Institutional <input type="checkbox"/> Recreational <input type="checkbox"/> RR Yard					
<b>24. Is there an Adjacent Crossing with a Separate Number?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    If Yes, Provide Crossing Number			<b>25. Quiet Zone (FRA provided)</b> <input type="checkbox"/> No <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> Partial <input type="checkbox"/> Chicago Excused    Date Established		
<b>26. HSR Corridor ID</b> <input checked="" type="checkbox"/> N/A		<b>27. Latitude in decimal degrees</b> (WGS84 std: nn.nnnnnnn)    33.8090250		<b>28. Longitude in decimal degrees</b> (WGS84 std: -nnn.nnnnnnn)    -117.8560980	
<b>29. Lat/Long Source</b> <input checked="" type="checkbox"/> Actual <input type="checkbox"/> Estimated					
<b>30.A. Railroad Use *</b> 101OL-4.46			<b>31.A. State Use *</b> 101OL-4.40		
<b>30.B. Railroad Use *</b> 0			<b>31.B. State Use *</b>		
<b>30.C. Railroad Use *</b> 0			<b>31.C. State Use *</b>		
<b>30.D. Railroad Use *</b> 0			<b>31.D. State Use *</b> NOE 2/24/2011		
<b>32.A. Narrative (Railroad Use) *</b> OTHER SIGNS 4-R15-2(2), 2-W10-9(24X8), 4-W			<b>32.B. Narrative (State Use) *</b> OTHER SIGNS 4-R15-2(2), 2-W10-9(24X8), 4-W10-		
<b>33. Emergency Notification Telephone No. (posted)</b> 888-446-9721		<b>34. Railroad Contact (Telephone No.)</b> 800-371-5465		<b>35. State Contact (Telephone No.)</b> 415-703-3722	

### Part II: Railroad Information

<b>1. Estimated Number of Daily Train Movements</b>				
<b>1.A. Total Day Thru Trains (6 AM to 6 PM)</b> 14	<b>1.B. Total Night Thru Trains (6 PM to 6 AM)</b> 2	<b>1.C. Total Switching Trains</b> 0	<b>1.D. Total Transit Trains</b> 0	<b>1.E. Check if Less Than One Movement Per Day</b> <input type="checkbox"/> How many trains per week?    0
<b>2. Year of Train Count Data (YYYY)</b> 2019		<b>3. Speed of Train at Crossing</b> 3.A. Maximum Timetable Speed (mph)    70 3.B. Typical Speed Range Over Crossing (mph)    From 40 to 70		
<b>4. Type and Count of Tracks</b> Main 1    Siding 0    Yard 0    Transit 0    Industry 0				
<b>5. Train Detection (Main Track only)</b> <input checked="" type="checkbox"/> Constant Warning Time <input type="checkbox"/> Motion Detection <input type="checkbox"/> AFO <input checked="" type="checkbox"/> PTC <input type="checkbox"/> DC <input type="checkbox"/> Other <input type="checkbox"/> None				
<b>6. Is Track Signaled?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>7.A. Event Recorder</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>7.B. Remote Health Monitoring</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



# U. S. DOT CROSSING INVENTORY FORM

A. Revision Date (MM/DD/YYYY) 01/17/2019		PAGE 2		D. Crossing Inventory Number (7 char.) 0270151	
<b>Part III: Highway or Pathway Traffic Control Device Information</b>					
1. Are there Signs or Signals?  <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		2. Types of Passive Traffic Control Devices associated with the Crossing			
2.A. Crossbuck Assemblies (count) 6		2.B. STOP Signs (R1-1) (count) 0	2.C. YIELD Signs (R1-2) (count) 0	2.D. Advance Warning Signs (Check all that apply; include count) <input type="checkbox"/> None <input checked="" type="checkbox"/> W10-1 2 <input type="checkbox"/> W10-3 0 <input type="checkbox"/> W10-11 0 <input type="checkbox"/> W10-2 0 <input type="checkbox"/> W10-4 0 <input type="checkbox"/> W10-12 0	
2.E. Low Ground Clearance Sign (W10-5) <input type="checkbox"/> Yes (count _____) <input checked="" type="checkbox"/> No		2.F. Pavement Markings <input checked="" type="checkbox"/> Stop Lines <input type="checkbox"/> Dynamic Envelope <input checked="" type="checkbox"/> RR Xing Symbols <input type="checkbox"/> None		2.G. Channelization Devices/Medians <input checked="" type="checkbox"/> All Approaches <input type="checkbox"/> Median <input type="checkbox"/> One Approach <input type="checkbox"/> None	
2.H. EXEMPT Sign (R15-3) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		2.I. ENS Sign (I-13) Displayed <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
2.J. Other MUTCD Signs Specify Type R8-8      Count 4 Specify Type W10-9P      Count 6 Specify Type W10-9      Count 2		2.K. Private Crossing Signs (if private)  <input type="checkbox"/> Yes <input type="checkbox"/> No		2.L. LED Enhanced Signs (List types)  0	
<b>3. Types of Train Activated Warning Devices at the Grade Crossing (specify count of each device for all that apply)</b>					
3.A. Gate Arms (count)  Roadway 6 Pedestrian 4		3.B. Gate Configuration <input type="checkbox"/> 2 Quad <input type="checkbox"/> Full (Barrier) <input checked="" type="checkbox"/> 3 Quad      Resistance <input type="checkbox"/> 4 Quad <input checked="" type="checkbox"/> Median Gates		3.C. Cantilevered (or Bridged) Flashing Light Structures (count) Over Traffic Lane 1 <input checked="" type="checkbox"/> Incandescent Not Over Traffic Lane 0 <input type="checkbox"/> LED	
3.D. Mast Mounted Flashing Lights (count of masts) 6 <input checked="" type="checkbox"/> Incandescent <input type="checkbox"/> LED <input checked="" type="checkbox"/> Back Lights Included <input type="checkbox"/> Side Lights Included		3.E. Total Count of Flashing Light Pairs  7			
3.F. Installation Date of Current Active Warning Devices: (MM/YYYY) ____/____/____ <input checked="" type="checkbox"/> Not Required		3.G. Wayside Horn  <input type="checkbox"/> Yes   Installed on (MM/YYYY) ____/____/____ <input checked="" type="checkbox"/> No		3.H. Highway Traffic Signals Controlling Crossing  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3.I. Bells (count)  4		3.J. Non-Train Active Warning <input type="checkbox"/> Flagging/Flagman <input type="checkbox"/> Manually Operated Signals <input type="checkbox"/> Watchman <input type="checkbox"/> Floodlighting <input checked="" type="checkbox"/> None			
3.K. Other Flashing Lights or Warning Devices Count 0      Specify type _____		3.L. Highway Traffic Pre-Signals <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Storage Distance * 11 Stop Line Distance * 5			
4.A. Does nearby Hwy Intersection have Traffic Signals?  <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		4.B. Hwy Traffic Signal Interconnection <input type="checkbox"/> Not Interconnected <input checked="" type="checkbox"/> For Traffic Signals <input type="checkbox"/> For Warning Signs		4.C. Hwy Traffic Signal Preemption <input checked="" type="checkbox"/> Simultaneous <input type="checkbox"/> Advance	
4.D. Highway Monitoring Devices (Check all that apply) <input type="checkbox"/> Yes - Photo/Video Recording <input checked="" type="checkbox"/> Yes - Vehicle Presence Detection <input type="checkbox"/> None		4.E. Highway Monitoring Devices (Check all that apply) <input type="checkbox"/> Yes - Photo/Video Recording <input checked="" type="checkbox"/> Yes - Vehicle Presence Detection <input type="checkbox"/> None			
<b>Part IV: Physical Characteristics</b>					
1. Traffic Lanes Crossing Railroad Number of Lanes 6 <input type="checkbox"/> One-way Traffic <input checked="" type="checkbox"/> Two-way Traffic <input type="checkbox"/> Divided Traffic		2. Is Roadway/Pathway Paved?  <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		3. Does Track Run Down a Street?  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4. Is Crossing Illuminated? (Street lights within approx. 50 feet from nearest rail) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		5. Crossing Surface (on Main Track, multiple types allowed)   Installation Date * (MM/YYYY) ____/____/____   Width * 10   Length * 136 <input type="checkbox"/> 1 Timber <input type="checkbox"/> 2 Asphalt <input type="checkbox"/> 3 Asphalt and Timber <input type="checkbox"/> 4 Concrete <input checked="" type="checkbox"/> 5 Concrete and Rubber <input type="checkbox"/> 6 Rubber <input type="checkbox"/> 7 Metal <input type="checkbox"/> 8 Unconsolidated <input type="checkbox"/> 9 Composite <input type="checkbox"/> 10 Other (specify) _____			
6. Intersecting Roadway within 500 feet?  <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No   If Yes, Approximate Distance (feet) 238		7. Smallest Crossing Angle  <input type="checkbox"/> 0° - 29° <input type="checkbox"/> 30° - 59° <input checked="" type="checkbox"/> 60° - 90°		8. Is Commercial Power Available? *  <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Part V: Public Highway Information</b>					
1. Highway System <input type="checkbox"/> (01) Interstate Highway System <input type="checkbox"/> (02) Other Nat Hwy System (NHS) <input type="checkbox"/> (03) Federal AID, Not NHS <input checked="" type="checkbox"/> (08) Non-Federal AID		2. Functional Classification of Road at Crossing <input type="checkbox"/> (0) Rural <input checked="" type="checkbox"/> (1) Urban <input type="checkbox"/> (1) Interstate <input type="checkbox"/> (5) Major Collector <input type="checkbox"/> (2) Other Freeways and Expressways <input type="checkbox"/> (3) Other Principal Arterial <input type="checkbox"/> (6) Minor Collector <input checked="" type="checkbox"/> (4) Minor Arterial <input type="checkbox"/> (7) Local		3. Is Crossing on State Highway System?  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4. Highway Speed Limit 40 _____ MPH <input checked="" type="checkbox"/> Posted <input type="checkbox"/> Statutory		5. Linear Referencing System (LRS Route ID) * 0			
6. LRS Milepost * 0		7. Annual Average Daily Traffic (AADT) Year 2011   AADT 032000			
8. Estimated Percent Trucks 18 _____ %		9. Regularly Used by School Buses?  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No   Average Number per Day _____		10. Emergency Services Route  <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Submission Information - This information is used for administrative purposes and is not available on the public website.</b>					
Submitted by _____ Organization _____ Phone _____ Date _____  Public reporting burden for this information collection is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed and completing and reviewing the collection of information. According to the Paperwork Reduction Act of 1995, a federal agency may not conduct or sponsor, and a person is not required to, nor shall a person be subject to a penalty for failure to comply with, a collection of information unless it displays a currently valid OMB control number. The valid OMB control number for information collection is 2130-0017. Send comments regarding this burden estimate or any other aspect of this collection, including for reducing this burden to: Information Collection Officer, Federal Railroad Administration, 1200 New Jersey Ave. SE, MS-25 Washington, DC 20590.					

**METROLINK.**

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY

metrolinktrains.com

# FACT SHEET

## ABOUT US

*Metrolink is Southern California's regional commuter rail service in its 26<sup>th</sup> year of operation. Metrolink is governed by the Southern California Regional Rail Authority (SCRRA), a joint powers authority made up of an 11-member board representing the transportation commissions of Los Angeles, Orange, Riverside, San Bernardino and Ventura counties. Metrolink operates over seven routes through a six-county, 538 route-mile network. Metrolink's passengers travel approximately 441 million miles each year, making Metrolink the second busiest public transportation provider in Southern California. Metrolink is the third largest commuter rail agency in the United States based on directional route miles and the eighth largest based on annual ridership.*

The Metrolink Regional Rail System	Q3 '18-19	Q3 '17-18
Number of Routes	7	7
Stations in Service	62	62
Route Miles (includes shared miles)	538	538
Route Miles (excludes shared miles)	388	388
Average Trains Operated/Weekday	173	173
Average Trains Operated/Saturday	48	48
Average Trains Operated/Sunday	42	42
Average Weekday Riders on Metrolink trains	38,436	37,652
Average Weekday Metrolink Riders on Amtrak	1,054	965
Total Average Weekday Metrolink Riders	39,490	38,617
Total Passenger Miles Traveled	99,550,224	102,022,721
Average System Speed (M.P.H. with stops)	36 m.p.h.	36 m.p.h.

Metrolink by Route Corridor	Q3 '18-19	Q3 '17-18
<b>Ventura County Line (E. Ventura to Los Angeles)</b> <i>Includes 13 Hollywood Burbank Airport trains</i>		
Stations	12	12
Route Miles	70.9	70.9
Trains Operated/Day	33	33
Avg. Weekday Riders on Metrolink	3,545	3,503
Avg. Weekday Metrolink Riders on Amtrak	94	91
Total Avg. Weekday Metrolink Riders	3,639	3,594
Saturday Metrolink Riders on Amtrak	7	4
Avg. Sunday Metrolink Riders on Amtrak	5	16
Passenger Miles Traveled	6,919,611	6,863,987
Average Speed	34 m.p.h.	34 m.p.h.

# Southern California Regional Rail Authority's FACT SHEET

Metrolink by Route Corridor	Q3 '18-19	Q3 '17-18
-----------------------------	-----------	-----------

***Antelope Valley Line (Lancaster to Los Angeles)***

Stations	12	12
Route Miles	76.6	76.6
Trains Operated/Weekday	30	30
Trains Operated/Saturday	12	12
Trains Operated Sunday	12	12
Average Weekday Riders	5,729	5,706
Average Saturday Service Riders	2,282	2,982
Average Sunday Service Riders	1,818	2,680
Passenger Miles Traveled	16,416,053	17,214,189
Average Speed	35 m.p.h.	35 m.p.h.

***San Bernardino Line (San Bernardino to Los Angeles)***

Stations	14	14
Route Miles	57.6	57.6
Trains Operated/Weekday	38	38
Trains Operated/Saturday	20	20
Trains Operated/Sunday	14	14
Average Weekday Riders	9,736	9,336
Average Saturday Service Riders	3,794	3,775
Average Sunday Service Riders	2,332	2,953
Passenger Miles Traveled	25,661,470	26,066,446
Average Speed	33 m.p.h.	33 m.p.h.

***Riverside Line (Riverside to Los Angeles)***

Stations	7	7
Route Miles	59.1	59.1
Trains Operated/Weekday	12	12
Average Weekday Riders	4,251	4,398
Passenger Miles Traveled	8,167,491	8,257,479
Average Speed	41 m.p.h.	41 m.p.h.

***Orange County Line (Oceanside to Los Angeles)***

Stations	15	15
Route Miles	87.2	87.2
Trains Operated/Weekday	29	29
Trains Operated/Saturday	8	8
Trains Operated/Sunday	8	8
Avg. Weekday Riders on Metrolink	7,739	7,337
Avg. Weekday Metrolink Riders on Amtrak	960	873
Total Avg. Weekday Metrolink Riders	8,699	8,210
Average Saturday Service Riders	2,272	2,055
Average Sunday Service Riders	1,747	2,242
Avg. Saturday Metrolink Riders on Amtrak	59	54
Avg. Sunday Metrolink Riders on Amtrak	47	47
Passenger Miles Traveled	23,366,357	23,725,384
Average Speed	39 m.p.h.	39 m.p.h.

## Southern California Regional Rail Authority's FACT SHEET

Metrolink by Route Corridor	Q3 '18-19	Q3 '17-18
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### ***Inland Empire-Orange County Line (San Bernardino to Oceanside)***

Stations	16	16
Route Miles	100.1	100.1
Trains Operated/Weekday	16	16
Trains Operated/Saturday	4	4
Trains Operated/Sunday	4	4
Average Weekday Riders	4,501	4,376
Average Saturday Service Riders	542	682
Average Sunday Service Riders	373	444
Passenger Miles Traveled	10,542,004	10,796,649
Average Speed	39 m.p.h.	39 m.p.h.

### ***91/Perris Valley Line (Perris Valley to Los Angeles via Fullerton)***

Stations	12	12
Route Miles	83.8	83.8
Trains Operated/Day	15	15
Trains Operated/Saturday	4	4
Trains Operated/Sunday	4	4
Average Weekday Riders	2,934	2,997
Average Saturday Service Riders	799	1039
Average Sunday Service Riders	548	753
Passenger Miles Traveled	8,477,239	9,098,588
Average Speed	35 m.p.h.	35 m.p.h.

### **Metrolink Fast Facts**

• Average weight of a Metrolink train	600 tons
• Passenger Car Dimensions	
Length	85'0"
Width	9'10"
Height	15'11"
• Locomotive Dimensions (maximum)	
Length	68'0"
Width	10'7.5"
Height	15'5"
• Average distance for a Metrolink train to stop	1/3 mile

### **Metrolink's 2018-19 Annual Budget \***

Operating Budget	\$251 million
Projected percent of operating costs covered by operating revenues	40.20%
Projected percent of operating costs covered by fares	34.10%

Source: SCRRA Approved Budget for FY 2018-19  
 \*All amounts shown are annual

## Southern California Regional Rail Authority's FACT SHEET

### Southern California Regional Rail Authority/Metrolink

Date of Formation	August 1991																
Form of Government	Joint Powers Authority																
Number of SCRRA Board Members	11																
Number of Alternates	11																
Number of Member Agencies	5																
Number of Ex-Officio Members	3																
SCRRA Member Agencies	Los Angeles County Metropolitan Transportation Authority Orange County Transportation Authority Riverside County Transportation Commission San Bernardino County Transportation Authority Ventura County Transportation Commission																
Ex-Officio Member Agencies	Southern California Association of Governments San Diego Association of Governments State of California																
SCRRA/Contract Employment	<table> <tr> <td>Operations <b>Bombardier</b></td><td>165</td></tr> <tr> <td>Operations <b>Amtrak</b></td><td>180</td></tr> <tr> <td>Maintenance of the Way <b>VTMI</b></td><td>81</td></tr> <tr> <td>Maintenance Signal <b>Mass Electric</b></td><td>66</td></tr> <tr> <td>SCRRA Administration</td><td>260</td></tr> <tr> <td>SCRRA Interns</td><td>17</td></tr> <tr> <td>SCRRA GOTCs</td><td>10</td></tr> <tr> <td><b>TOTAL</b></td><td><b>779</b></td></tr> </table>	Operations <b>Bombardier</b>	165	Operations <b>Amtrak</b>	180	Maintenance of the Way <b>VTMI</b>	81	Maintenance Signal <b>Mass Electric</b>	66	SCRRA Administration	260	SCRRA Interns	17	SCRRA GOTCs	10	<b>TOTAL</b>	<b>779</b>
Operations <b>Bombardier</b>	165																
Operations <b>Amtrak</b>	180																
Maintenance of the Way <b>VTMI</b>	81																
Maintenance Signal <b>Mass Electric</b>	66																
SCRRA Administration	260																
SCRRA Interns	17																
SCRRA GOTCs	10																
<b>TOTAL</b>	<b>779</b>																

### Metrolink Train Equipment

Number of Locomotives	62*
<b>Total Number of Commuter Rail Cars</b>	<b>258</b>
Cab Cars	73
Coaches	185
<b>Equipment on Order</b>	
Locomotives	25
Cab Cars	0
Coaches	0

\* 59 Owned; 3 Leased to date

### Highway-Rail Grade Crossings

Total Number of Grade Crossings of All Types in Metrolink System <sup>1,2</sup>	882
Number of At-Grade Crossings in System	456
Number of Undergrade Crossings (Railroad Over) in System	193
Number of Overgrade Crossings (Railroad Under) in System	233
Number of Public Crossings in System	726
Number of Pedestrian Crossings in System	47
Number of Private Crossings in System	56

<sup>1</sup> The Metrolink system operates over rail rights-of-way owned by SCRRA member agencies, Burlington Northern Santa Fe Railroad (BNSF), Union Pacific Railroad (UPRR) and North County Transit District (NCTD)

## Southern California Regional Rail Authority's FACT SHEET

Number of Private Pedestrian Crossings in System	3
Number of Station Crossings in the System	50
Number of SCRRA-owned Crossings in System	606
Number of BNSF-owned Crossings in System	130
Number of UPRR-owned Crossings in System	124
Number of NCTD-owned Crossings in System	22

### At-Grade Crossings:

	<u>Metrolink</u>	<u>BNSF</u>	<u>UPRR</u>	<u>NCTD</u>
Total	352	41	60	3
Public	281	38	47	2
Pedestrian	11	0	4	0
Private	31	2	9	1
Pedestrian Private	0	0	0	0
Station	29	1	0	0

### Undergrade Crossings (Railroad Over):

	<u>Metrolink</u>	<u>BNSF</u>	<u>UPRR</u>	<u>NCTD</u>
Total	98	47	39	9
Public	72	42	36	4
Pedestrian	14	5	2	2
Private	6	0	1	2
Pedestrian Private	1	0	0	0
Station	5	0	0	1

### Overgrade Crossings (Railroad Under):

	<u>Metrolink</u>	<u>BNSF</u>	<u>UPRR</u>	<u>NCTD</u>
Total	156	42	25	10
Public	140	33	23	8
Pedestrian	9	0	0	0
Private	0	2	0	2
Pedestrian Private	2	0	0	0
Station	5	7	2	0

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**APPENDIX 7.1:**

**ON-SITE RAIL NOISE CALCULATIONS**

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Project:	13210
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Receiver Parameters	
Receiver:	Worst-Case Façade
Land Use Category:	2. Residential
Existing Noise (Measured or Generic Value):	

Noise Source Parameters	
Number of Noise Sources:	2

Noise Source Parameters		Source 1
	Source Type:	Fixed Guideway
	Specific Source:	Diesel Electric Locomotive
Daytime hrs	Avg. Number of Locos/train	1
	Speed (mph)	39
	Avg. Number of Events/hr	2
Nighttime hrs	Avg. Number of Locos/train	1
	Speed (mph)	39
	Avg. Number of Events/hr	1
Distance	Distance from Source to Receiver (ft)	63
	Number of Intervening Rows of Buildings	0
Adjustments		

Noise Source Parameters		Source 2
	Source Type:	Fixed Guideway
	Specific Source:	Rail Car
Daytime hrs	Avg. Number of Rail Cars/train	6
	Speed (mph)	39
	Avg. Number of Events/hr	2
Nighttime hrs	Avg. Number of Rail Cars/train	1
	Speed (mph)	39
	Avg. Number of Events/hr	1
Distance	Distance from Source to Receiver (ft)	63
	Number of Intervening Rows of Buildings	0
Adjustments	Noise Barrier?	No
	Jointed Track?	Yes
	Embedded Track?	No
	Aerial Structure?	No

**Project:** 13210  
**Receiver:** Worst-Case Façade

Hour	Source 1	Source 2	Source 3		LOG SUM	Adj.
0	56.0	47.7			56.6	66.6
1	56.0	47.7			56.6	66.6
2	56.0	47.7			56.6	66.6
3	56.0	47.7			56.6	66.6
4	56.0	47.7			56.6	66.6
5	56.0	47.7			56.6	66.6
6	56.0	47.7			56.6	66.6
7	59.0	58.5			61.8	61.8
8	59.0	58.5			61.8	61.8
9	59.0	58.5			61.8	61.8
10	59.0	58.5			61.8	61.8
11	59.0	58.5			61.8	61.8
12	59.0	58.5			61.8	61.8
13	59.0	58.5			61.8	61.8
14	59.0	58.5			61.8	61.8
15	59.0	58.5			61.8	61.8
16	59.0	58.5			61.8	61.8
17	59.0	58.5			61.8	61.8
18	59.0	58.5			61.8	61.8
19	59.0	58.5			61.8	66.8
20	59.0	58.5			61.8	66.8
21	59.0	58.5			61.8	66.8
22	56.0	47.7			56.6	66.6
23	56.0	47.7			56.6	66.6

**CNEL**

**FTA Ldn**

**Delta**

## **APPENDIX 9.1:**

### **CADNAA CONSTRUCTION NOISE MODEL INPUTS**

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# 13210

CadnaA Noise Prediction Model: 13210\_Construction.cna

Date: 27.03.20

Analyst: B. Lawson

## Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates			
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)	
RECEIVERS		R1	67.1	67.1	73.8	0.0	0.0	65.0				5.00	a	6073559.95	2240992.92	5.00	
RECEIVERS		R2	65.1	65.1	71.8	0.0	0.0	65.0				5.00	a	6073511.62	2240699.75	5.00	
RECEIVERS		R3	70.9	70.9	77.6	0.0	0.0	65.0				5.00	a	6073010.11	2240775.00	5.00	
RECEIVERS		R4	73.6	73.6	80.3	0.0	0.0	65.0				5.00	a	6073430.95	2241253.07	5.00	

## Area Source(s)

ID	Result. PWL			Result. PWL"			Lw / Li		Operating Time			Moving Pt. Src			Height
	Day	Evening	Night	Day	Evening	Night	Type	Value	Day	Special	Night	Number			
	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			(min)	(min)	(min)	Day	Evening	Night	(ft)
SITEBOUNDARY	117.7	117.7	117.7	75.3	75.3	75.3	Lw"	75.3							8

Name	Height		Coordinates			
	Begin	End	x	y	z	Ground
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	8.00	a	6073096.37	2241218.94	8.00	0.00
			6073560.03	2241213.77	8.00	0.00
			6073545.97	2241182.52	8.00	0.00
			6073518.36	2241122.10	8.00	0.00
			6073480.34	2241023.66	8.00	0.00
			6073437.63	2240895.54	8.00	0.00
			6073415.76	2240808.04	8.00	0.00
			6073380.34	2240678.87	8.00	0.00
			6073283.47	2240679.39	8.00	0.00
			6073282.42	2240688.25	8.00	0.00
			6073281.38	2240695.02	8.00	0.00
			6073279.82	2240700.75	8.00	0.00
			6073273.05	2240713.25	8.00	0.00
			6073262.63	2240723.14	8.00	0.00
			6073249.09	2240732.00	8.00	0.00
			6073225.13	2240738.25	8.00	0.00
			6073198.57	2240734.41	8.00	0.00
			6073190.29	2240729.65	8.00	0.00
			6073182.86	2240723.66	8.00	0.00
			6073177.95	2240719.47	8.00	0.00
			6073172.50	2240716.00	8.00	0.00
			6073166.61	2240713.34	8.00	0.00
			6073160.41	2240711.53	8.00	0.00
			6073154.01	2240710.60	8.00	0.00
			6073098.46	2240711.19	8.00	0.00

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**Attachment 14. Sole Source Aquifer Map Screenshot**



637 W Struck Ave, Orange, X

Show search results for 637 W ...

Map navigation controls: Home, Full Screen, Layers, Search, etc.

Layer List

Search result

637 W Struck Ave, Orange, CA, 92867, USA

[Zoom to](#)

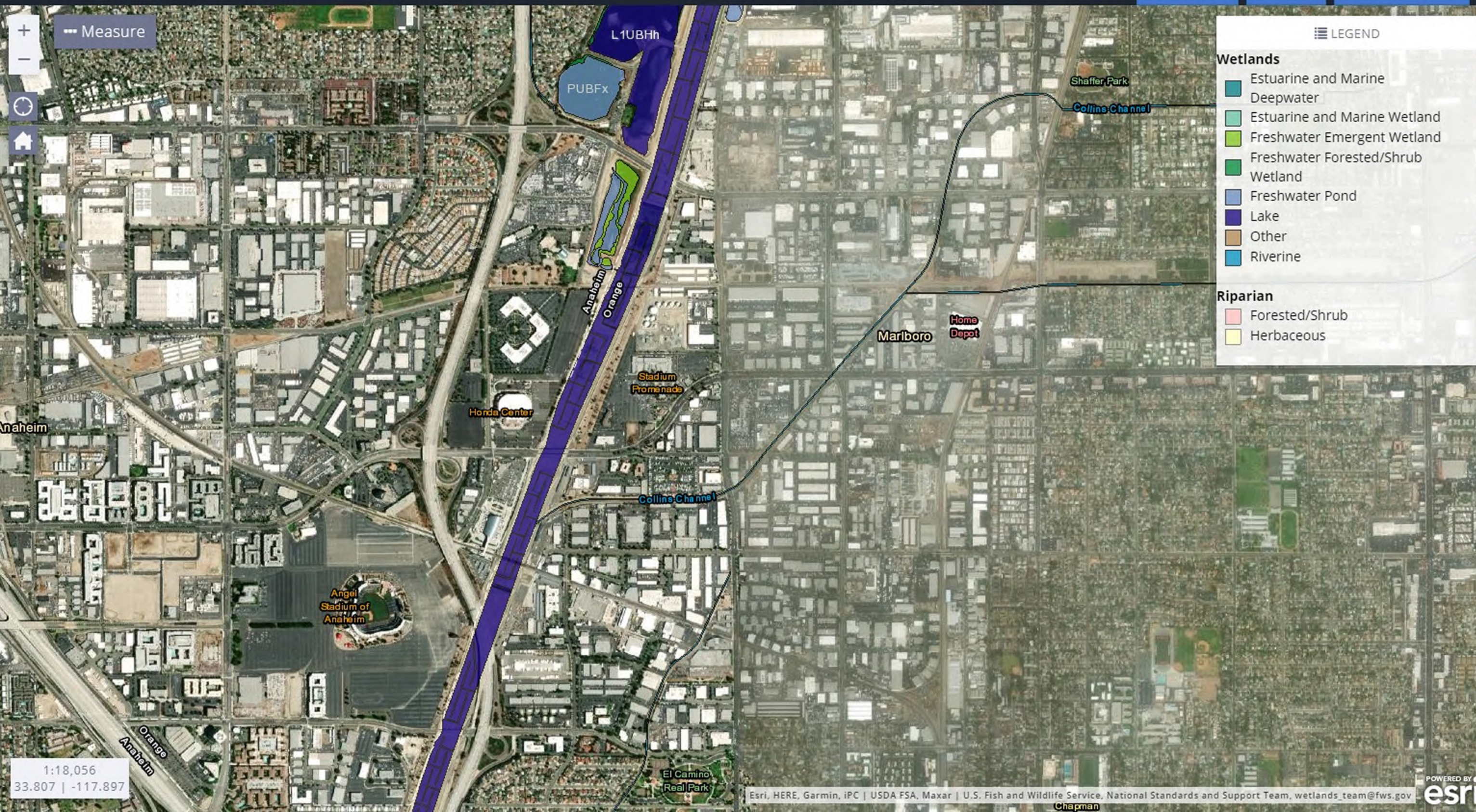


**Attachment 15. OCY NWI Map Screenshot**



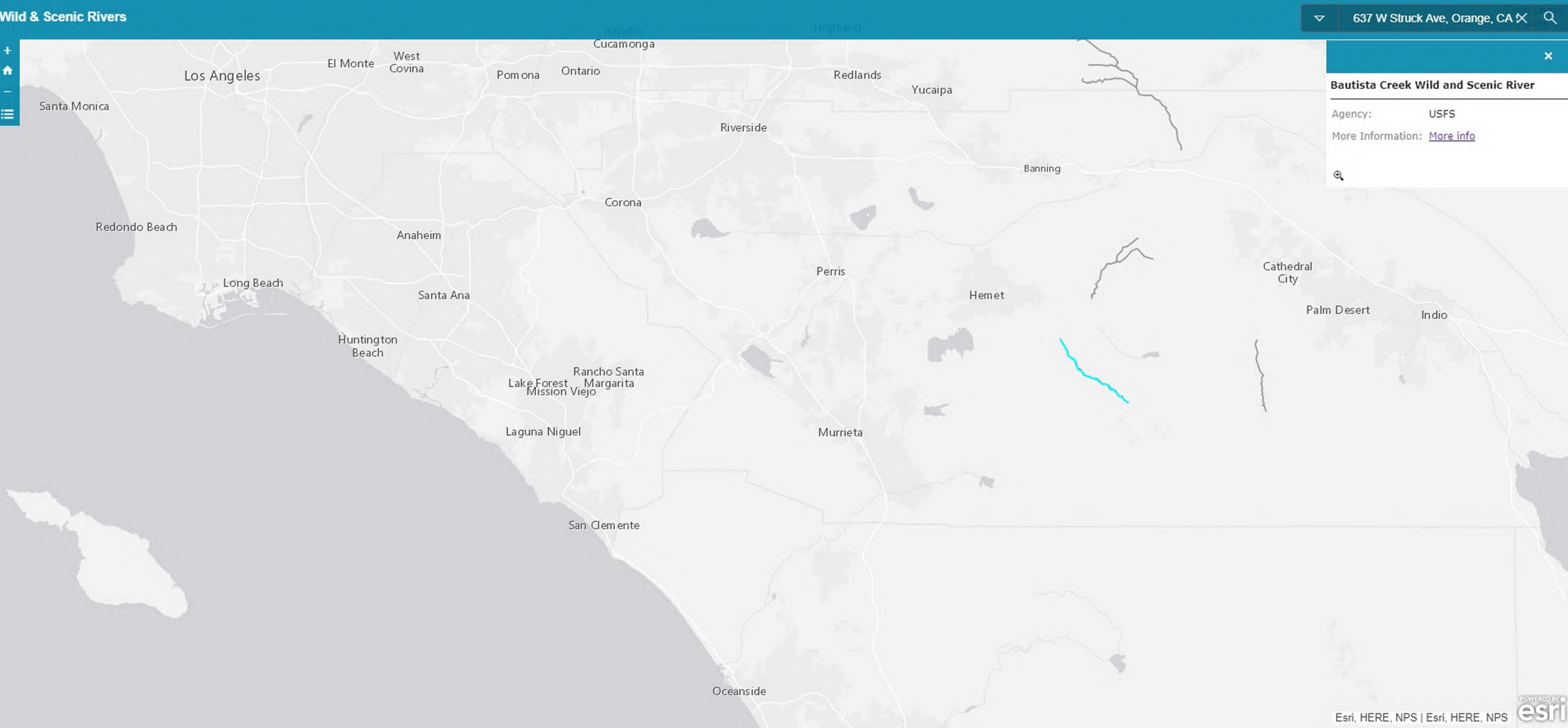
[BASEMAPS >](#)[MAP LAYERS >](#)

- ☒ Wetlands 1 2
- ☒ Riparian 1 2
- ☐ Riparian Mapping Areas 1 2
- ☒ Data Source 1 2
  - ☐ Source Type
  - ☐ Image Scale
  - ☐ Image Year
- ☐ Areas of Interest 2
- ☐ FWS Managed Lands 1 2
- ☐ Historic Wetland Data 1 2





**Attachment 16. Wild and Scenic River Map Screenshot**



Bautista Creek Wild and Scenic River

Agency: USFS  
More Information: [More info](#)

